

STE20_h	-----MAH	LRGFANQHSRV	-----DPEEL	FTKLDR	IGKGSFGEV	YK	GIDNHTK	43								
MST3_h	-----MAH	SPVQSGLPGMQNLKA	DPEEL	FTKLEK	IGKGSFGEV	F	KGIDNRTQ	47								
STLK2_h	-----MAH	SPVAVQVPGMQNNIA	DPEEL	FTKLER	IGKGSFGEV	F	KGIDNRTQ	47								
STLK3_h	TAA	PAPAPAPAPAAQAVGWPI	CRDAYELQ	EVIGSG	ATAVVQ	AAL	CKPRQ	57								
STE20_h	EVVA	IKIIDL	EEAEDEIEDIQ	EITVLSQC	SPYITR	YF	GSYLKSTKL	WIIMEYLG	100							
MST3_h	KVVA	IKIIDL	EEAEDEIEDIQ	EITVLSQC	SPYVT	KY	GSYLKDTKL	WIIMEYLG	104							
STLK2_h	QVVA	IKIIDL	EEAEDEIEDIQ	EITVLSQC	SSYVT	KY	GSYLKGSKL	WIIMEYLG	104							
STLK3_h	ERVA	IKRIINLE	KCQTSMD	ELLKEIQ	AMSQC	SHPN	VVTYYT	SFVVKDEL	WLV	MKLLSG	114					
STE20_h	GSAL	DLLKPGP	-----LE	EITYI	ATIL	REIL	KGLDYL	HSEK	IHRD	IKAANVLL	148					
MST3_h	GSAL	DLLKPGP	-----L	DEITQ	IATIL	REIL	KGLDYL	HSEK	IHRD	IKAANVLL	152					
STLK2_h	GSAL	DLLRA	GP-----F	DEFQ	IATM	LEIK	EILKGLDYL	HSEK	IHRD	IKAANVLL	152					
STLK3_h	GSML	DIIKYIVNR	GEHKN	GVLE	EAI	IATIL	KEVL	EGLDYL	HRNGQ	IHRDL	KAGNI	171				
STLK4_h	-----K	SGVLDX	STIATIL	REVL	LEGL	EY	LHKXGQ	IHRDV	KAGNI	LX	41					
STE20_h	SE	QGDV	KLADFGV	-A-	-----G	QLTDTQ	IKRNTFV	GTFF	WMAPEVI	KQSA	-Y	DFKADI	198			
MST3_h	SE	HGEV	KLADFGV	-A-	-----G	QLTDTQ	IKRNTFV	GTFF	WMAPEVI	KQSA	-Y	DFKADI	202			
STLK2_h	SE	QGDV	KLADFGV	-A-	-----G	QLTDTQ	IKRNTFV	GTFF	WMAPEVI	KQSA	-Y	DFKADI	202			
STLK3_h	GE	DG	SVQI	ADFGV	SAFL	ATGG	DVTIR	NKV-R	KTFV	GTFC	WMAPEV	MEQ	V	RGYDFKAD	M	227
STLK4_h	GE	DG	SVQI	ADFGV	SAFL	ATGG	DITIR	NKV-R	KTFV	GTFC	WMAPEV	MEQ	V	RGYDFKADI	97	

Fig. 1A

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STE20_h	- - - - -	- - - - -	- - - - -	T F P P T	I R P S P H S K L H K G	T A L H S S Q	K P A E P V K	350
MST3_h	- - - - -	- - - - -	- - - - -	D W I F T	I R E K D P K N L E N G	A L Q P S D L	D R N K M K D	354
STLK2_h	- - - - -	- - - - -	- - - - -	S F T T V R K K P D P K K V Q N G	A E Q D L V Q T L S	- - - - -	- - - - -	351
STLK3_h	- - - - -	- - - - -	- - - - -	N P E I A V S A S T I P E Q I Q S L S V H D S Q	G P P N A N E	- - - - -	- - - - -	413
STLK4_h	L L Q V P E Q I S A H L P Q P A G Q I A T Q T V S L P P T	A E P A K T A Q A L S S G S G S Q E T K I P	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	320

Fig. 1B

STE20_h	RQ--PRSQCLSTLVRPVFGELKEKHKQSGGSGVGALEEL	ENAFSLAEE	SCPGIS	DKLM	405
MST3_h	IPKRPFSQCLSTIISPLFAELKEKSAACGGNLGSI	EEL	RGAIYLAEE	CPGIS	411
STLK2_h	-----CLSMIITPAFAELKQDENNASRNQAI	EEL	EKSI	AVAA	400
STLK3_h	DY--REASSCAVNLVLRRLNSRKELNDIRFEFTPGRDT	ADGV	SQEL	FSA	468
STLK4_h	-----ISLVLRRLNSKKELNDIRFEFTPGRDT	AE	GV	SQEL	366
STE20_h	VH L V E R V Q R F S H N R N H L T S T R				426
MST3_h	A Q L V Q R L Q R Y S L S G G G T S S H				431
STLK2_h	K K L I E K F Q K C S A D E S P				416
STLK3_h	V I V A A N L Q K I V D D P K A L K T L T F K L A S G C D G S E I P D E V K L I G F A Q L S V S				516
STLK4_h	V I V A A N L Q K I V E E P Q S N R S V T F K L A S G V E G S D I P D D G K L I G F A Q L S I S				414

Fig. 1C

Title: PAK5 SCREENING
METHODS
Inventor(s): Gregory PLOWMAN
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Ste20_h MAHLRGFANQHSRV - - - - - DPEELFTKLDRIQKGSFGEVYKGI DNHTK 43
T19A5.2_ce MTTTSSDELPRQADDDSMKWDR IYIQKLDPEVIFTKQERIGRGSFGEVYKGI DNRTG 57
Pak_sp - - - - - - - - - - - LLYRN FVKIQGASGDVYSARQVGIN 26
STLK5_h - 0

Ste20_h EVVAIKIIDL EEADEIEDIQQEITVLSQCDSPIYITRYFGSYLKSTKLWIIIMEYLG 100
T19A5.2_ce RVVAIKIIDL EEADEIEDIQQEIQVLSQCDSQYVTKYFGSFLKGSKLWIIIMEYLG 114
Pak_sp LSVAIKIKMNI NQQPKKEF - I VNEILVMKSHHKNIVNFIDTFYKSELWMVMEYMRG 82
STLK5_h - 0

Ste20_h GSA L D L L K P G P L E E T Y I A T I L R E I L K G L D Y L H S E R K I I H R D I K A A N V L S E Q G D V K L A 157
T19A5.2_ce GSA L D L T K S G K L D E S H I A V I L R E I L K G L E Y L H S E R K I I H R D I K A A N V L S E H G D V K V A 171
Pak_sp GSA L T E V V T N N T L S E G Q I A A I C K E T L E G L Q H L H E N G I V H R D I K S D N I L S L Q G D I K L T 139
STLK5_h - - L I C T H F M D G M N E L A I A Y I L Q G V L K A L D Y I I H M G Y V H R S V K A S H I L I S V D G K V Y L S 55

Ste20_h DFGVAGQLTDTQIKRNTFFVGTPIF - - - - - WMAPEVIKQSA - - YDFKADIWSLGIT A 205
T19A5.2_ce DFGVAGQLTETVKKRITFFVGSPIF - - - - - WMAPELIKQSS - - YDYKADIWSLGIT A 219
Pak_sp DFGFCAQIDSNMTKRITIMVGTPIY - - - - - WMAPEVIVTRKE - - YGFKVDVWSLGI MA 187
STLK5_h GLRSNLSMISAGQRQRVVHDFPKYSVKVLPWLSP E V L Q Q N L Q G Y D I A K S D I Y S V G I T A 112

Ste20_h IELAKGEPPNSDLHPMRVILFLIPK-NSPPITILEG-Q - - - - - - - - - - - 238
T19A5.2_ce IELANGEPHSDLHPMRVILFLIPK-NPPVVLQGSQ - - - - - - - - - - - 253
Pak_sp IEMVEGEPPYLNENPLRALYLIATIGTPKISRPEL - - - - - - - - - - - 222
STLK5_h CELANGHVPFKDMPATQMLLEKLN-GTVPCLD-TSTIPAEELTMSPSRVSANSGLS 167

Fig. 2A

ZC504.4_ce	MSSSGEDE	-----	IDLNS	SLRDPAGIFEL	I	EVVGN	GT	YG	QV	YK	GRHV	KT	AQ	LAA	AI	KI	M	N	I	N	I	N	E	58																																					
NIK_m	MANDSPAKSLVD	IDL	SS	SLRDPAGIFEL	V	EVVGN	GT	YG	QV	YK	GRHV	KT	VT	-	AA	IK	V	M	D	V	T	E	69																																						
ZC1_h	MANDSPAKSLVD	IDL	SS	SLRDPAGIFEL	V	EVVGN	GT	YG	QV	H	EG	RRHV	KT	GQ	LAA	AI	K	V	M	D	V	T	E	60																																					
ZC2_h	-----	-----	-----	-----	-----	AF	GE	VE	YEG	RRHV	KT	GQ	LAA	AI	K	V	M	D	V	T	G	28																																							
ZC3_h	-----	-----	-----	-----	-----	AF	GE	VE	YEG	RRHV	KT	GQ	LAA	AI	K	V	M	D	V	T	E	28																																							
ZC504.4_ce	DEED	EIKLEINMLKK	HSHHRN	VATYYG	AFIKK	LPS	STG	KH	DQ	LWL	VME	FCG	S	GS	I	T	D	L	V	K	116																																								
NIK_m	DEEEEI	TLEINMLKKY	SHHRNI	ATYYG	AFIKK	SPP	G	H	D--	DQ	LWL	VME	FCG	S	I	T	D	L	V	K	117																																								
ZC1_h	DEEEEIK	LEINMLKKY	SHHRNI	ATYYG	AFIKK	SPP	G	H	D--	DQ	LWL	VME	FCG	S	I	T	D	L	V	K	118																																								
ZC2_h	DEEEEIK	QLEINMLKKY	SHHRNI	ATYYG	AFIKK	NPP	G	M	D--	DQ	LWL	VME	FCG	S	V	T	D	L	I	K	84																																								
ZC3_h	DEEEEIK	QLEINMLKKY	SHHRNI	ATYYG	AFIKK	SPP	G	N	D--	DQ	LWL	VME	FCG	S	V	T	D	L	V	K	84																																								
ZC504.4_ce	NTKG	GS	LKE	E	W	I	A	Y	I	C	R	E	I	L	R	G	L	Y	H	L	H	Q	S	K	V	I	H	R	D	I	K	G	Q	N	V	L	T	D	S	A	E	V	K	L	V	D	F	G	V	S	A	Q	L	176							
NIK_m	NTKG	N	T	L	K	E	D	W	I	A	Y	I	S	R	E	I	L	R	G	L	A	H	L	H	I	H	V	I	H	R	D	I	K	G	Q	N	V	L	T	E	N	A	E	V	K	L	V	D	F	G	V	S	A	Q	L	177					
ZC1_h	NTKG	N	T	L	K	E	D	W	I	A	Y	I	S	R	E	I	L	R	G	L	A	H	L	H	I	H	V	I	H	R	D	I	K	G	Q	N	V	L	T	E	N	A	E	V	K	L	V	D	F	G	V	S	A	Q	L	178					
ZC2_h	NTKG	N	T	L	K	E	E	W	I	A	Y	I	C	R	E	I	L	R	G	L	S	H	L	H	Q	H	K	V	I	H	R	D	I	K	G	Q	N	V	L	T	E	N	A	E	V	K	L	V	D	F	G	V	S	A	Q	L	144				
ZC3_h	NTKG	N	A	L	K	E	D	C	I	A	Y	I	C	R	E	I	L	R	G	L	A	H	L	H	A	H	K	V	I	H	R	D	I	K	G	Q	N	V	L	T	E	N	A	E	V	K	L	V	D	F	G	V	S	A	Q	L	144				
ZC504.4_ce	D	K	T	V	G	R	R	N	T	F	I	G	T	P	Y	W	M	A	P	E	V	I	A	C	D	E	S	P	E	A	T	Y	D	S	R	S	D	L	W	S	L	G	I	T	A	L	E	M	A	E	G	H	P	P	L	C	D	M	H	P	236
NIK_m	D	R	T	V	G	R	R	N	T	F	I	G	T	P	Y	W	M	A	P	E	V	I	A	C	D	E	N	P	D	A	T	Y	D	Y	R	S	D	L	W	S	C	G	I	T	A	I	E	M	A	E	G	G	P	P	L	C	D	M	H	P	237
ZC1_h	D	R	T	V	G	R	R	N	T	F	I	G	T	P	Y	W	M	A	P	E	V	I	A	C	D	E	N	P	D	A	T	Y	D	Y	R	S	D	L	W	S	C	G	I	T	A	I	E	M	A	E	G	A	P	P	L	C	D	M	H	P	238
ZC2_h	D	R	T	V	G	R	R	N	T	F	I	G	T	P	Y	W	M	A	P	E	V	I	A	C	D	E	N	P	D	A	T	Y	D	F	K	S	D	L	W	S	L	G	I	T	A	I	E	M	A	E	G	A	P	P	L	C	D	M	H	P	204
ZC3_h	D	R	T	V	G	R	R	N	T	F	I	G	T	P	Y	W	M	A	P	E	V	I	A	C	D	E	N	P	D	A	T	Y	D	Y	R	S	D	T	W	S	L	G	I	T	A	I	E	M	A	E	G	A	P	P	L	C	D	M	H	P	204

Fig. 3A

ZC3_h

ZC3-h

ZC3 b

ZC3_h

Fig. 3B

METHODS

Inventor(s): Gregory PLOWMAN
et al.

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Fig. 3C

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et al.

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ZC504.4_ce	-----NSGHGAYKGKKIPEIRPGIISL-DDDDSD	623
NIK_m	-----AWSRSDSEVPVPRVVRTTSRSPVLSRRDSPILQGGGQNS	639
ZC1_h	-----PQVPVRTTSRSPVLSRRDSPILQ-GSGQQN	648
ZC2_h	NSDPTSENPLPTRIEKFDRSSWLREQEEDIIPPKVPQRTTISISPA LARKNSP GNGSALGPR	635
ZC3_h	NSDPTSEGPSPNPP-----AWVRPD-NEAPPKVPQRTTSSIAATALNTSGAGGSRPAQAVR	689
ZC504.4_ce	SDNE-----EGNEPLMFKPIVRCPFSIFFWFLS--	651
NIK_m	QAGQ-----RNSTSSIEPRLLWERVEKLVPRPG--	667
ZC1_h	SQAG-----QRNSTSIEPRLLWERVEKLVPRPG--	676
ZC2_h	LGSQ-----PIRASNPDLRRTTEPILESP LQRITSSG	665
ZC3_h	ARPRNSAWQIYLQRRERGTPKPPGPPAQPPGPPNASNPDLR RSDPG-----WERS--	742
ZC504.4_ce	--ANVIHSVDGSIPLVKHLIWFQNASSRGALPDLLPKSPCLRRQINDQTRQMSDDRADE	709
NIK_m	--SGSSSGSSNSGSGQPGSNPGSQSGSGERFVRSSSKSESGSPSPRQESAAKKPDDKKEVF	725
ZC1_h	--SGSSSGSSNSGSGQPGSNPGSQSGSGERFVRSSSKSESGSPSQRL ENAVKKPEDKKEVF	734
ZC2_h	SSSSSTPSQPSSQGGSQPGSQAGSSERTRVRANSKSESGSPVLPHEPAKVKEESRDIT	725
ZC3_h	--DSVLPAS HGHLP-----QAGSLERNR VGVSSKPPDSSPVLSPGNKA KPPDDHRSRPG	792
ZC504.4_ce	QPNGFQ-----NSDSR-----SSIQHSFSNRDREKSFVGVYFGGGAGA GGTVNRPG---	755
NIK_m	RS LKPAGEV-----DLTAL-----AKELRAVEDVRPPPHKVTDYSSSSEESGTTDEEEEDVED	777
ZC1_h	RPLKPA-----DLTAL-----AKELRAVEDVRPPPHKVTDYSSSSEESGTTDEEDDVEQ	783
ZC2_h	RPSRPA SYKKAIDEDLTALAKELRELRIEETNRPMKKVTDYSSSSEESSESSEEEEDGES	785
ZC3_h	RPADFV-----L-----LKERTLDEAPRPPKKAMDYSSSSEEVESSEDEEEEGEG	837

Fig. 3D

ZC504.4_ce	DQMTVLEGNILATISGRKRRIRVYYLSWLRQKILRTGAGSANTTEKRNQWVNVGD	889
NIK_m	QQMDVLEGNVLTISGKKDKLRVYYLSWLRNKILHNDPEV	1013
ZC1_h	QQMDVLEGNVLTISGKKDKLRVYYLSWLRNKILHNDPEV	1019
ZC2_h	QQMDVLEGNVLTISGKKDKLRVYYLSWLRNRILHNDPEV	1077
ZC3_h	QQMDVLEGNLILITISGKRNKLRVYYLSWLRNKILHNDPEV	1106
ZC4_h	RQLQVLEPLNLLITISGHNRLRVYHLTWLRNKILNDPESSKRRQEEMLKTEEAC	120
ZC504.4_ce	---LQQAIFKIVRIRYERIKFLVVGLESSIEIYAWAPKPYHKFMSFKSFGSLSHVPLIV	944
NIK_m	---LEGCVHYKVVKYERIKFLVIALKSSVEVYAWAPKPYHKFMAFKSFGELHKKPLLV	1068
ZC1_h	---LEGCVHYKVVKYERIKFLVIALKSSVEVYAWAPKPYHKFMAFKSFGELVHKPLLV	1074
ZC2_h	---LEGCVHYKVVKYERIKFLVIALKNAVEIYAWAPKPYHKFMAFKSADLQHKPLLV	1132
ZC3_h	---MEGCVHYRVVVKYERIKFLVIALKSSVEVYAWAPKPYHKFMAFKSADLPHRPLLV	1161
ZC4_h	KAIKLTGCEHFSVQLQHEETTYIAIALKSSITHLYAWAPKSFDESTAIKVEPTLDHKKPVTV	180
ZC504.4_ce	DLTVEEDNARLKVLYGSTGGFHAIIDLDSAAVYDIYTPAQSGQTTPHCTVVLPNNGMQLL	1004
NIK_m	DLTVEEGQRLKVIYGSACGFHAVDVDSGSVYDIYLPTHIQCSIKPHAIILPNTDGMELL	1128
ZC1_h	DLTVEEGQRLKVIYGSACGFHAVDVDSGSVYDIYLPTHIQCSIKPHAIILPNTDGMELL	1134
ZC2_h	DLTVEEGQRLKVIYGSHTGFHVIVDVDSGNSYDIYTPSHIQGNITPHAIIVILPKTDGMEML	1192
ZC3_h	DLTVEEGQRLKVIYGSACGFHAVDVDSGNSYDIYIPVHIQSQITPHAIIFLPNTDGMEMML	1221
ZC4_h	DIAIGSEKRLKIFFSSADGYHLIDAESFVMSDVTLPKNPLEIIPQNIILPDCITGMM	240

Fig. 3F

ZC504.4_ce
 NIK_m
 ZC1_h
 ZC2_h
 ZC3_h
 ZC4_h

L	C	Y	D	N	E	G	V	Y	V	N	T	Y	G	R	M	T	K	N	V	V	L	Q	W	G	E	M	P	S	S	V	A	Y	I	S	T	G	Q	I	M	G	W	G	N	K	A	I	E	I	R	S	V	D	T	G	H	L	D	G	V	
V	C	Y	E	D	E	G	V	Y	V	N	T	Y	G	R	I	T	K	D	V	V	L	Q	W	G	E	M	P	T	S	V	A	Y	I	R	S	N	Q	T	I	M	G	W	G	E	K	A	I	E	I	R	S	V	E	T	G	H	L	D	G	V
V	C	Y	E	D	E	G	V	Y	V	N	T	Y	G	R	I	T	K	D	V	V	L	Q	W	G	E	M	P	T	S	V	A	Y	I	R	S	N	Q	T	I	M	G	W	G	E	K	A	I	E	I	R	S	V	E	T	G	H	L	D	G	V
V	C	Y	E	D	E	G	V	Y	V	N	T	Y	G	R	I	T	K	D	V	V	L	Q	W	G	E	M	P	T	S	V	A	Y	I	H	S	N	Q	I	M	G	W	G	E	K	A	I	E	I	R	S	V	E	T	G	H	L	D	G	V	
L	C	Y	E	D	E	G	V	Y	V	N	T	Y	G	R	I	T	K	D	V	V	L	Q	W	G	E	M	P	T	S	V	A	Y	I	C	S	N	Q	I	M	G	W	G	E	K	A	I	E	I	R	S	V	E	T	G	H	L	D	G	V	
L	T	F	N	A	E	A	L	S	V	E	A	N	E	Q	L	F	K	K	I	L	E	M	M	K	D	I	P	S	S	I	A	F	E	C	T	D	R	T	T	G	W	G	Q	K	A	I	E	V	R	S	L	Q	S	R	V	L	E	S	E	

1064
1188
1194
1252
1281
300

ZC504.4_ce
 NIK_m
 ZC1_h
 ZC2_h
 ZC3_h
 ZC4_h

F	M	H	K	K	A	Q	K	L	K	F	L	C	E	R	N	D	K	V	F	F	S	S	A	K	G	G	S	C	Q	I	Y	F	M	T	L	N	K	P	G	L	T	N	W					
F	M	H	K	R	A	Q	R	L	K	F	L	C	G	R	N	D	K	V	F	F	S	S	V	R	S	G	G	S	S	Q	V	Y	F	M	T	L	G	R	T	S	L	L	S	W				
F	M	H	K	R	A	Q	R	L	K	F	L	C	E	R	N	D	K	V	F	F	A	S	V	R	S	G	G	S	S	Q	V	Y	F	M	T	L	G	R	T	S	L	L	S	W				
F	M	H	K	R	A	Q	R	L	K	F	L	C	E	R	N	D	K	V	F	F	A	S	V	R	S	G	G	S	S	Q	V	F	F	M	T	L	N	R	N	S	M	M	N	W				
F	M	H	K	R	A	Q	R	L	K	F	L	C	E	R	N	D	K	V	F	F	A	S	V	R	S	G	G	S	S	Q	V	Y	F	M	T	L	N	R	N	R	I	M	N	W				
L	K	R	R	S	I	K	K	L	R	F	L	C	T	R	G	D	K	L	F	F	T	S	T	L	R	N	H	H	S	R	V	Y	F	M	T	L	G	K	L	E	E	L	Q	S	N	Y	D	V

1109
1233
1239
1297
1326
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Fig. 3G

Title: PAK5 SCREENING
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 et al.
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METHODS

Inventor(s): Gregory PLOWMAN
et al.

Attorney Docket No.: 034536-0688

KHS1_h	5	LRPAADILRRNPQQDYELVQRVGSGTYGVDYKARNVHTGELAAVKIIKLEPGDDFSLIQQ	64
KHS2_h	1	MNPGFDLSRRNPQEDFELIQRIGSGTYGVDYKARNVNTGELAAIKVIKLEPGEDFAVVQQ	60
KHS1_h	65	EIFMVKECKHCNIVAYFGSYLSREKLWICMEYCGGSLQDIYHVTGPLSELQIAYVCRET	124
KHS2_h	61	EIIMMKDCKHPNIVAYFGSYLRRDKLWICMEFCGGSLQDIYHVTGPLSELQIAYVSRET	120
KHS1_h	125	LQGLAYLHTKGKMHRDIKGANILLTDHGDVKLADFGVAAKITATIAKRKSFIGTPYWMAP	184
KHS2_h	121	LQGLYLYLSKGMHRDIKGANILLTDNGHVKLADFGVSAQITATIAKRKSFIGTPYWMAP	180
KHS1_h	185	EVAAVEKGGYNQLCDIWAVGITAIELGELQPPMFDLHPMRALFLMSKSNFQPPKDKT	244
KHS2_h	181	EVAVERKGGYNQLCDLWAVGITAIELAEELQPPMFDLHPMRALFLMTKSNFQPPKDKM	240
KHS1_h	245	KWSSTFHNFVKIALTKNPKKRPTAERLLTHTFVAQPGLSRALAVELLDKVNNPDNHAHYT	304
KHS2_h	241	KWSNSFHHFVKMALTKNPKKRPTAEKLLQHPFVTQH-LTRSLAIELLDKVNNPD-HSTYH	298
KHS1_h	305	EADDDDFEPAHIIIRHTIRSTNRNARAERTASEINFDKLQFEPPLRKETEARDMGLS---	361
KHS2_h	299	DFDDDDPEPLVAVPHRIHSTSRNVREEKTRSEITFGQVKFDPPLRKETEPPHHELPSDGF	358

Fig. 4A

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Fig. 4B

KHS1_h	664	FDFPLPSP	NVFEMLV	IPEQYPMV	CVAISKGTES	NQVVQFETI	NLSASSWFTE	IAGS	.
KHS2_h	714	IDFPIPC	LRFEMLV	VVPEQEYPL	VCVGVSRRGRD	FNQVVRFE	TVPNPSTSSW	FTE--SDT	771

724 QQLDSIHVTQLERDTVLVCLDKFVKIVNLQGKLSKKLASSELSFDFRIESVVC LQDSVL 783
KHS1_h

772 PQTNVTHVTQLERDTILVCLDCCIIVNLQGRLLKSSRKLSSSELTFFDFQIESIVCLQDSVL 831
KHS2_h

Index	Key	Value
784	KHS1_h	AFWKHGMQGSFKSDEVTQEISDETRVFRLLGSDRVVLESRPTENPTAHSNLYILAGHE
832	KHS2_h	AFWKHGNQGRSFRSNEVTQEISDSTRIFRLLGSDRVVLESRPTDNPTANSNLYILAGHE

KHS1_h	844	N S Y	***	846
KHS2_h	892	N S Y	***	894

Fig. 4C

Title: PAK5 SCREENING METHODS
Inventor(s): Gregory PLOWMAN
et al.
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SULU_ce MAPAVLQKPGVIAALFSNKKDPEQRYQDRLREIGHGSFGAVYFA YDKKNEQTVAIKK 60
SULU1_h - - - - MRKGV LKDP EIDDL F YKDDPEELF IGLHEIGHGSFGAVYFA TNAHTNEVVAIKK 54
SULU3_m - - MPSTNRA GSLKDP EIAEL F FKE DPEKLF TDLREIGHGSFGAVYFA RDVRTNEVVAIKK 58

SULU_ce M N F S G K Q A V E K W N D I L K E V S F L N T V V H P H I V D Y K A C F L K D T T C W L V M E Y C I G S A A D I V D V 120
SULU1_h M S Y S G K Q T H E K W Q D I L K E V K F L R Q L K H P N T I E Y K G C Y L K E H T A W L V M E Y C L G S A S D L L E V 114
SULU3_m M S Y S G K Q S T E K W Q D I I K E V K F L Q R I K H P N S I E Y K G C Y L R E H T A W L V M E Y C L G S A S D L L E V 118

SULU_ce L R K G M R E V E I A A I C S Q T L D A L R Y L H S L K R I H R D I K A G N I L L S D H A I V K L A D F G S A S L V D P 180
SULU1_h H K K P L Q E V E I A A I T H G A L H G L A Y L H S H A L I H R D I K A G N I L L T E P G Q V K L A D F G S A S M A S P 174
SULU3_m H K K P L Q E V E I A A I T H G A L Q G L A Y L H S H T M I H R D I K A G N I L L T E P G Q V K L A D F G S A S M A S P 178

SULU_ce A Q T F I G T P F F M A P E V I L A M D E G H Y T D R A D I W S L G I T C I E L A E R R P P L F S M N A M S A L Y H I A 240
SULU1_h A N S F V G T P Y W M A P E V I L A M D E G Q Y D G K V D I W S L G I T C I E L A E R K P P L F N M N A M S A L Y H I A 234
SULU3_m A N S F V G T P Y W M A P E V I L A M D E G Q Y D G K V D V W S L G I T C I E L A E R K P P L F N M N A M S A L Y H I A 238
SULU3_h - - - - - - - - - - - - - - - - I I E L A E R K P P L F N M N A M S A L Y H I A 24

SULU_ce Q N D P P T L S P I D T S E Q P E W S L E F V Q F I D K C L R K P A E E R M S A E E C F R H P F I Q R S R P S D T I Q E 300
SULU1_h Q N D S P T L Q S N - - - - - E W T D S F R R F V D Y C L Q K I P Q E R P T S A E L L R H D F V R R D R P L R V L I D 288
SULU3_m Q N E S P T L Q S N M N - - - - - - - - - - D S C L Q K I P Q D R P T S E E L L K H M F V L R E R P E T V L I D 284
SULU3_h Q N E S P T L Q S N - - - - - E W S D Y F R N F V D S C L Q K I P Q D R P T S E E L L K H I F V L R E R P E T V L I D 78

SULU_ce L I Q R T K N M V L E L D N F Q Y K K M R K L M Y L D E T E G K E G S E G N G A S D D L D F H G N E A N S I G R A G D S 360
SULU1_h L I Q R T K D A V R E L D N L Q Y R K M K K I L F - 313
SULU3_m L I Q R T K D A V R E L D N L Q Y R K M K K L L F - 309
SULU3_h L I Q R T K D A V R E L D N L Q Y R K M K K L L F - 103

Fig. 5A

SULU_ce ASSRSASLT SFRSMQSSGGAGLLVSTNTTGAMDNVHGS SSGYNGSSSTSSARRRRPPPIPS 420
SULU1_h ----- QETRNGLNE S 324
SULU3_m ----- QEAHNGPAVEA 320
SULU3_h ----- QEAHNGPAVEA 114

SULU_ce QMLSSSTSGVGTMP SHGSVGA SITAIAVNPTSPSEP IPTSQPTSKSES - SILETAHD 479
SULU1_h QEEEDSEHGTSLNREMDSLG SNHSIPSM SVSTGSSSSSVNSMQEVMDESSELVMMHDD 384
SULU3_m QEEEEEQDHGVGRTGTVNSVGSNQSI PSMSISASSSQSSSVNSLPDASDDKSS - ELDDMMEGD 379
SULU3_h QEEEEEQDHGVGRTGTVNSVGSNQSI PSMSISASSSQSSSVNSLPDVSDDKSS - ELDDMMEGD 173

SULU_ce DPLDTSI ----- RAPVKDLHMPHRAVKERIA TLQNHKFATLR SQRII 521
SULU1_h ESTINS SSVVHKKDHVFTTRDEAGHGDP RPTQSVQSQALHYRNREH FATI KSA SLV 444
SULU3_m HTVMSN SSVIHLKPEEENYQEEGDPRTRASDPQSPQVSRHKS HYRNREH FATI R T A SLV 439
SULU3_h HTVMSN SSVIHLKPEEENYREEGDPRTRASDPQSPQVSRHKS HYRNREH FATI R T A SLV 233

SULU_ce NQE QEEYT KENMYEQMSKYKHLRQAHHKE LQQFEERCALDREQLRVKMDRELEQLTTTY 581
SULU1_h TRQIHEHEQENELREQMSGYKRRMRRRQHQQQLIAL ENKLKAEMDEHRLK LQKEVETHANN S 504
SULU3_m TRQM QEHEQDSELREQMSGYKRRMRRRQHQQQLMTLE NK LKAEMDEHRLRLDKDLETQRNNF 499
SULU3_h TRQM QEHEQDSELREQMSGYKRRMRRRQHQQQLMTLE NK LKAEMDEHRLRLDKDLETQRNNF 293

SULU_ce SK EKMRVRCSQNNELDKRKKDIEDG EKKMKKT KNSQNNQQQMKLYSAQQ LK EYKYNKEA QK 641
SULU1_h SIEL EKLA KKQVAIIIEKEAKVAAADE EKKFQQQILAQKKKD LTTFL ESQKKQYKICKEIK 564
SULU3_m AAEMEKLIIKKHQAAMEKEAKVMAANE EKKFQQQHIQAQQKKELNSFLESQKKREYKLRKEQLK 559
SULU3_h AAEMEKLIIKKHQAAMEKEAKVMSNE EKKFQQQHIQAQQKKELNSFLESQKKREYKLRKEQLK 353

Fig. 5B

SULU_ce TR L R S L N M - P R S T Y E N A M K E V K A D L N R V K D A R E N D F D E K L R A E L E D E I V R Y R R Q Q L S N L H 700
SULU1_h E E M N E D H S T P K K E K Q E R I S K H K E N L Q H T Q A E E E A H L L T Q Q R L Y Y D K N C R F F K R K I M I K R H 624
SULU3_m E E L N E N Q S T P K K E K Q E W L S K Q K E N I Q H F Q A E E E A N L L R R Q R Q Q Y L E L E C R R F K R M L L G R H 619
SULU3_h E E L N E N Q S T P K K E K Q E W L S K Q K E N I Q H F Q A E E E A N L L R R Q R Q Q Y L E L E C R R F K R M L L G R H 413

SULU_ce Q L E E Q L D D E D V N V Q E R Q M D T R H G L L S K Q H E M T R D L E I Q H L N E L H A M K K R H L E T Q H E A E S A 760
SULU1_h E V E Q Q N I R E E L N K K R T Q K E M E H A M L I R H D E S T R E L E Y R Q L H T L Q K L R M D L I R L Q H Q T E L E 684
SULU3_m N L E Q D L V R E E L N K R Q T Q K D L E H A M L L R Q H E S M Q E L E F R H L N T I Q K M R C E L I R L Q H Q T E L T 679
SULU3_h N L E Q D L V R E E L N K R Q T Q K D L E H A M L L R Q H E S M Q E L E F R H L N T I Q K M R C E L I R L Q H Q T E L T 473

SULU_ce S Q N E Y T Q R Q Q D E L R K K H A M S R Q Q P R D L K I Q E A Q I R K Q Y R Q V V K T I Q T R Q F K L Y L T Q M V Q V 820
SULU1_h N Q L E Y N K R R R E R E L H R K K H V M G L R Q Q P K N L K A M E M Q I K K Q F Q D T C K V Q T K Q Y K A L K N H Q L E V 744
SULU3_m N Q L E Y N K R R R E R E L R R K K H V M E V R Q Q P K S L K S K E L Q I K K Q F Q D T C K I Q T R Q Y K A L R N H L L E T 739
SULU3_h N Q L E Y N K R R R E R E L R R K K H V M E V R Q Q P K S L K S K E L Q I K K Q F Q D T C K I Q T R Q Y K A L R N H L L E T 533

SULU_ce V P K D E Q K E L T S R L K Q D Q M Q K V A L L A S Q Y E S Q I K K M V Q D K T V K L E S W Q E D E Q R V L S E K L E K 880
SULU1_h T P K N E H K T I L K T L K D E Q T R K L A I L A E Q Y E Q S I N E M M A S Q A L R L D E A Q E A E C Q A L R L Q L Q Q 804
SULU3_m T P K N E H K A I 748
SULU3_h T P K S E H K A V L K R L K E E Q T R K L A I L A E Q Y D H S I N E M L S T Q A L R L D E A Q E A E C Q V L K M Q L Q Q 593

SULU_ce E L E E L I A Y Q K K T R A T L E E Q I K K E R T A L E E R I G T R R A M L E Q K I I E E R E Q M G E M R R L K K E Q I 940
SULU1_h E M E L L N A Y Q S K I K M Q T E A Q H E R E L Q K L E Q R V S I R R A H L E Q K I E E E L A A L Q K E R S E R I K N L 864
SULU3_h E L E L L N A Y Q S K I K M Q A E A Q H D R E L R E L E Q R V S I R R A L L E Q K I E E E M L A L Q N E R T E R I R S L 653

Fig. 5C

SULU_ce	RDRHSQERHRLLENHFVRTG	STSRSSGGIAPGVGNSSSIQMAM	982
SULU1_h	LERQEREIETFDMESLRMG	FGNLVTLDFFPKEDYR	898
SULU3_h	LERQAREIEAFDSESMRLG	FSNMVLSNLSPEAFSHSYPGASGWSHNPTGGPGPHWGHPMG	713
SULU3_h	GPPQAWGHPMQGGPPQWGHPSGPMQGVPRGSSMGVRNSPQALRRRTASGGRT	EQGMSRSTS	773
SULU3_h	VTSQISNGSHMSYT		787

Fig. 5D

```
*****
1  MAFANFRRLRLSTFEKRSREYEHVRRDLDPNDVWEIVGELGDGAFGKVYKAKNKETGA 60
GEK2_h 1  MAFANFRRLRLSTFEKRSREYEHVRRDLDPNEVWEIVGELGDGAFGKVYKAKNKETGA 60

*****
61  LAAAKVIETKSEEELEDYIVEIEILATCDHPYIVKLLGAYYDYGKLVWIMIEFCPPGGAVDA 120
GEK2_h 61  LAAAKVIETKSEEELEDYIVEIEILATCDHPYIVKLLGAYYHDGKLVWIMIEFCPPGGAVDA 120

*****
121  IMLELDRGLTEPQIQVVCQMLEALNFLHGKRIIHRDLKAGNVLMTLEGDRLADFGVSA 180
GEK2_h 121  IMLELDRGLTEPQIQVVCQMLEALNFLHRSKRIIHRDLKAGNVLMTLEGDRLADFGVSA 180

*****
181  KNLKTLQKRDSFIGTPYWMAPEVVLCEMKDAPYDYKADIWSLGITLIEMAQIEPPHHEL 240
GEK2_h 181  KNLKTLQKRDSFIGTPYWMAPEVVMCEMKDTPDYKADIWSLGITLIEMAQIEPPHHEL 240

*****
241  NPMRVLLKIAKSDPPTLLTPSKWSVEFRDFLKIALDKNPETRPSAAQLLQHPFVSRVTSN 300
GEK2_h 241  NPMRVLLKIAKSDPPTLLTPSKWSVEFRDFLKIALDKNPETRPSAAQLLEHPFVSSITSN 300

*****
301  KALRELVAEAKAEVMEEIEDGREDEGEEDAVDVPPLVNHTQDSANVTQPSLDSNKKLLQD 360
GEK2_h 301  KALRELVAEAKAEVMEEIEDGRDEGEEDAVDAASTLENHTQNSSEVSPPSLNADKPLEE 360
```

Fig. 6A


```
* * * * * . . . * * * * * . . . * * * * * . . . * * * * * . . . * * * * * . . . * * * * *
361 S-STPLPPSQPQEPVNGPCSQPSGQDGLQTTSPADGLSKNDNDLKVPVPLRKSRPLSMDA 419
GEK2_h 361 SPSTPLAPSQSQDSVNEPCSQPSGDRSLQTTSPPVVAPGNENGLAVPVPLRKSRPV SMDA 420

* * * * * . . . * * * * * . . . * * * * * . . . * * * * * . . . * * * * * . . . * * * * *
420 RIQMDEEKQIPDQDENPSPAASKSQKANQSRPNSSALETLGGEALTNGGLELPSSVTPSH 479
GEK2_h 421 RIQVAQEKQVAEQGGDLSPAANRSQKASQSRPNSSALETLGGEKLANGSLEPPAQAAPGP 480

* * * * * . . . * * * * * . . . * * * * * . . . * * * * * . . . * * * * * . . . * * * * *
480 SKRASDCSNLSTSESMGYGTSLSADLSLNKETGSLSLKGSKLHNKTLKTRRRFVVDGVEV 539
GEK2_h 481 SKRSDSCSSLCTSESMGYGTNLSTDLSLNKEMGSLSIKDPKLYKKTLKTRKFFVVDGVEV 540

* * * * * . . . * * * * * . . . * * * * * . . . * * * * * . . . * * * * * . . . * * * * *
540 SITTSKIISEDEKKDEEMRFLRRQELRELRLQKEEHRNQTQLSSKHLELQEQMHKRFEQ 599
GEK2_h 541 SITTSKIISEDEKKDEEMRFLRRQELRELRLQKEEHRNQTQLSNKHLELQEQMHKRFEQ 600

* * * * * . . . * * * * * . . . * * * * * . . . * * * * * . . . * * * * * . . . * * * * *
600 EINAKKKFYDVELENLERQQKQVEKMEQDHSVRRKEEAKRIRLEQDRDYAKFQEQLKQM 659
GEK2_h 601 EINAKKKFFDTELENLERQQKQVEKMEQDHA VRRREEARRIRLEQDRDYTRFQEQ LKLM 660

* * * * * . . . * * * * * . . . * * * * * . . . * * * * * . . . * * * * * . . . * * * * *
660 KKEVKSEVEKLPQQRKESMKQKMEEHSQKKQRLDRDFVAKQKEDLEAMRKLT TENRRE 719
GEK2_h 661 KKEVKNEVEKLPQQRKESMKQKMEEHTQKKQLLDRDFVAKQKEDLEAMKRLT TDNRRE 720
```

Fig. 6B

LOK_m	720	ICDKERDCLSKKQELLRDREAALWEMEEHQLQERHQLVKQQLKDQYFLQRHDLRLRKHEKE	779
GEK2_h	721	ICDKEREC LMKKQELLRDREAALWEMEEHQLQERHQLVKQQLKDQYFLQRHELRLRKHEKE	780
LOK_m	780	REQMQRYNQRMMEQLKVRQQQEKKARLPKIQRSDGETRMAMYKKSLSHINGAGSASEQREKI	839
GEK2_h	781	REQMQRYNQRMIEQLKVRQQQEKKARLPKIQRSEGKTRMAMYKKSLSHINGGSAAEQREKI	840
LOK_m	840	KQFSQQEERQKAERLQQQQKKEHQMRDMVAQCESNMSELQQQLQNEKCYLLVEHETQKCLK	899
GEK2_h	841	KQFSQQEERQKSERLQQQQKHENQMRDMLAQCESNMSELQQQLQNEKCHLLVEHETQKCLK	900
LOK_m	900	ALDESHNQSLKE	911
GEK2_h	901	ALDESHNQNLKE	912

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Fig. 6C

Title: PAK5 SCREENING METHODS
Inventor(s): Gregory PLOWMAN et al.
Attorney Docket No.: 034536-0688

METHODS

Inventor(s): Gregory PLOWMAN

et al.

Attorney Docket No.: 034536-0688

PAK1_h	MSN	GLDIQDKPP	APPMRNTSTMIGAGSKDAGTL	NH	GS	KPLPPN	PEEK	KKKDRFYRSIL	59								
PAK65_h	MEET	QQKSHLELLSA	- - - - -	- - - - -	- - - - -	NH	SL	KPLPSVPEEK	KPRHKIISIFS	40							
PAK3_m	-MSD	SLDNEEKPPAPPLR	- - - - -	MNS	NNRDSSALNH	SS	KPLPMA	PEEK	NKKARLSIFPG	54							
PAK1_h	PGDK	TNKKKKEKERPEISL	PSD	FEHTIHVGFD	AV	TG	FTGM	PEQ	WARLLQTSNITKS	115							
PAK65_h	GTEK	GSKKKKEKERPEISL	PSD	FEHTIHVGFD	TV	TG	FTGM	PEQ	WARLLQTSNITKL	96							
PAK3_m	GGDK	TNKKKKEKERPEISL	PSD	FEHTIHVGFD	AV	TG	FTGI	PEQ	WARLLQTSNITKL	110							
PAK4_h	- - -	-MFR	KKKKRPEISAP	QNF	QHRVHTSF	DP	KEGKFV	GLP	QWQNI	DL	TRRP	KP	VVDP	56			
PAK1_h	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	115			
PAK65_h	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	96			
PAK3_m	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	110			
PAK4_h	SRIT	RVQLQPMKT	VVRGS	AMPVDGYIS	GLLNDIQKLS	VISS	N	TLRGRS	PT	SR	RR	AQSLGL	116				
PAK1_h	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	115			
PAK65_h	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	96			
PAK3_m	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	110			
PAK4_h	LGDE	HWATDPD	MYLQSPQ	SERTDPH	GLYLS	CNGG	TPAGHK	QMPW	PEPQ	S	PR	VL	P	NG	LAAK	176	
PAK1_h	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	127
PAK65_h	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	108
PAK3_m	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	122
PAK4_h	AQSL	GPAEFQ	GA	SQRCLQL	GAC	LQSS	PPGAS	PP	TGTNR	HGM	KAAKH	GS	EE	EAR	PQ	SCLVGS	236

Fig. 7A

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PAK1_h	G	Q	G	A	S	G	T	V	Y	T	A	M	D	V	A	T	G	Q	E	V	A	I	K	Q	M	N	L	Q	Q	P	K	K	E	L	I	N	E	I	L	V	M	R	E	N	K	N	P	N	I	V	N	Y	L	D	S	Y	L	V	
PAK65_h	G	Q	G	A	S	G	T	V	F	T	A	T	D	V	A	L	G	Q	E	V	A	I	K	Q	I	N	L	Q	K	Q	P	K	K	E	L	I	N	E	I	L	V	M	K	E	L	K	N	P	N	I	V	N	F	L	D	S	Y	L	V
PAK3_m	G	Q	G	A	S	G	T	V	Y	T	A	L	D	I	A	T	G	Q	E	V	A	I	K	Q	M	N	L	Q	Q	P	K	K	E	L	I	N	E	I	L	V	M	R	E	N	K	N	P	N	I	V	N	Y	L	D	S	Y	L	V	
PAK4_h	G	E	G	S	T	G	I	V	C	L	A	R	E	K	H	S	G	R	Q	V	A	V	K	M	M	D	L	R	K	Q	Q	R	R	E	L	L	F	N	E	V	I	M	R	D	Y	Q	H	F	N	V	V	E	M	Y	K	S	Y	L	V
PAK5_h	G	E	G	S	T	G	I	V	C	I	A	T	V	R	S	S	G	K	L	V	A	V	K	K	M	D	L	R	K	Q	Q	R	R	E	L	L	F	N	E	V	I	M	R	D	Y	Q	H	E	N	V	V	E	M	Y	N	S	Y	L	V

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Fig. 7C

SEQ ID NO: 5 STLK2 human Nterm=1-21 kin=22-274
Cterm=275-416

MAHSPVAVQVPGMQNNIADPEELFTKLERIGKGSFGEVFKGIDNRTQQVVAIKIIDLEEA
EDEIEDIQQEITVLSQCDSSYVTKYYSYLGSKLWIIMEYLGGSALDLLRAGPFDEFQ
IATMLKEILKGLDYLHSEKKIHRDIKAANVLLSEQGDVKLADFGVAGQLTDTQIKRNTFV
GTPFWMAPEVIQQSAYDSKADIWSLGITAIELAKGEPNSDMHPMRVLFILPKNNPPTLV
GDFTKSFKEFIDACLNKDPSFRPTAKELLKHKFIVKNSKTSYLTTELIDRFKRWKAEGHS
DDES DSEGS DSEST SRENTHPEWSFTTVRKKPDPKKVQNGAEQDLVQTLSCLSMIITPA
FAELKQQDENNASRNQAIEELEKSI AVAEAAACPGITDKMVKKLIEKFQKCSADESP

SEQ ID NO: 6 STLK3 human Nterm=1-31 kin=32-308 Cterm=309-489
(insert=327-352) tail=490-516

TAAPAPAAPAAPAPAPAPAPAAQAVGWPICRDAYELQEVI GSGATAVVQAALCKPRQERV
AIKRINLEKCQTSMDLLKEIQAMSQC SHPNVVTTYTSFVVKDELWLV MKLLSGGSMLDI
IKYIVNRGEHKNGVLEEAI IATILKEVLEGLDYLHRNGQIHRDLKAGNILLGEDGSVQIA
DFGVSAFLATGGDVTRNKVRKTFVGTPCWMAPEVMEQVRGYDFKADMWSFGITAIELATG
AAPYHKYPPMKVLM LTLQNDPPTLETGVEDKEMMKKYGKSFRKLLSLCLQKDPSKRPTAA
ELLKCKFFQKAKNREYLIEKLLTRTPDIAQRAKKVRRVPGSSGHLHKTEDGDWEWSDDDEM
DEKSEEGKAAFSQEKSRRVKEENPEIAVSASTIPEQIQSLSVHDSQGPPNANEDYREASS
CAVNLVLRRLNSRKELNDIRFEFTPGRDTADGVSQELFSAGLVDGHDVVIVAANLQKIVD
DPKALKTLTFKLASGCDGSEIPDEVKLIGFAQLSVS

SEQ ID NO: 7 STLK4 human Nterm=absent, kin=1-178, Ctail=179-414,
insert1=198-222, insert2=253-293

KSGVLDXSTIATILREVLEGL EYLHKXGQIHRDVKAGNILXGEDGSVQIADFGVSAFLAT
GGDITRNKVRKTFVGTPCWMAPEVMEQVRGYDFKADIWSFGITAIELATGAAPYHKYPPM
KVLMLTLQNDPPSLETGVQDK EMLKKYGKSFRKMISLCLQKDPEKRPTAAELLRHKFFQK
AKNKEFLQEKT LQRAPTISERAKK VRRVPGSSGRLHKTEDGGWEWSDDDEFDEESEEGKAA
ISQLRSPRVKESISNSELFP TTD PVGTL LQVPEQISAHLPQPAGQIATQPTQVSLPPTAE
PAKTAQALSSGSGSQETKIPISLVLRRLNSKKELNDIRFEFTPGRDTAEGVSQELISAGL
VDGRDLVIVAANLQKIVEEPQSNRSVTFKLASGVEGSDIPDDGKLIGFAQLSIS

SEQ ID NO: 8 STLK5 human Nterm=absent, kin=1-222(lacks N-term),
Ctail=224-274

LICTHFMDGMNELAIAYILQGV LKALDYIHHMGYVHRSVKASHILISVDGKVYLSGLRSN
LSMISHGQRQRVVHDFPKYSVKVLPWLSPEVLQQNLQGYDAKSDIYSVGITACELANGHV
PFKDMPATQMLLEKLNGTVPCLLDTSTIPAEELTMSPSRSVANSGLSDSLTTSTPRPSNG
DSPSHPHYHRTFSPHFHHFVEQCLQRNP DARPSASTLLNHSFFKQIKRRASEALPELLRPV

Fig. 8A
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METHODS

Inventor(s): Gregory PLOWMAN
et al.

Attorney Docket No.: 034536-0688

TPITNFEQSQSDHSGIFGLVTNLEELEVDDWEF

SEQ ID NO: 13 ZC1 human 1/5/98 Nterm=1-22 kin=23-289

coiled-coil=290-526 pro=527-640 B=641-896 Rab/Rac-BD=897-1239

MANDSPAKSLVDIDLSSLRDPAGIFELVEVVGNGTYGQVYKGRHVKTGQLAAIKVMDVTE
DEEEEIKLEINMLKKYSHHRNIATYYGAFIKKSPPGHDDQLWLVMFCGAGSITDLVKNT
KGNTLKEDWIAYSISREILRGLAHLHIHHVIHRDIKGQNVLLTENAEVKLVDFGVSAQLDR
TVGRRNTFIGTPYWMAPEVIACDENPDATYDYRSDLWSCGITAIEMAEGAPPLCDMHPMR
ALFLIPRNPPLRLKSKKWSKKFFSFIEGCLVKNYMQRPESTEQLLKHPFIRDQPNERQVRI
QLKDHIDRTRKKRGEKDETEYEYSGSEEEEEEEVPEQEGEPSSIVNVPGESTLRRDFLRLQ
QENKERSEALRRQQLLQEQQLREQEEYKRQLLAERQKRIEQQKEQRRRLEEQQRREREAR
RQQEREQRRREQEKKRRLEELERRRKEEEEERRRAEEEKRRVEREQEYIRRLQEEEEQRHLE
VLQQQLLQEQAMLLECRWREMEHRQAERLQRQLQEQAYLLSLQHDHRRPHPQHSQQPP
PPQQERSKPSFHAPEPKAHYEPADRAREVEDRFRKTNHSSPEAQSKQTGRVLEPPVPSRS
ESFSNGNSESVHPALQRPAEPQVPVRTTSRSPVLSRRDSPLQGGSGQQNSQAGQRNSTSIE
PRLWERVEKLVPRPGSGSSSGSSNSGSQPGSHPGSQSGSGERFRVRSSSKSEGSPSQRL
ENAVKKPEDKKEVFRPLKPADLTALAKELRAVEDVRPPHKVTDYSSSSSEESGTTDEEDDD
VEQEGADESTSGPEDTRAASSLNLSNGETESVKTMIHDDVESEPAMTPSKEGTLIVRRT
QSASSTLQKHKSSSSFTPFIDPRLQLISPSSGTTVTSVVGFSCDGMRPEAIRQDPTRKGS
VVNVNPTNTRPQSDTPEIRKYKKRFNSEILCAALWGVNLLVGTESGLMLLDRSGQGKVYP
LINRRRFQQMDVLEGLNVLVTISGKKDKLRVYYLSWLRNKILHNDPEVEKKQGWTTVGD
EGCVHYKVVKYERIKFLVIALKSSVEVYAWAPKPYHKFMAFKSFGELVHKPLLVDLTVEE
GQRLKVIYGSCAGFHAVDVDSGSVYDIYLPTHIQCSIKPHAIILPNTDGMELLVCYEDE
GVYVNTYGRITKDVVLQWGEMPTSVAYIRSNQTMGWGEKAIEIRSVETGHLDGVMHKRA
QRLKFLCERNKDVFFASVRS GGSSQVYFMTLGRTSLLSW

SEQ ID NO: 14 ZC2 human Nterm=missing kin=1-255 coiled-coil=256-442
pro=443-626 B=627-954 Rab/RacBD=955-1297

AFGEVYEGRHVKTGQLAAIKVMDVTGDEEEEIKQEINMLKKYSHHRNIATYYGAFIKKNP
PGMDDQLWLVMFCGAGSVTDLIKNTKGNTLKEEWIAYICREILRGLSHLHQHKVIHRDI
KGQNVLLTENAEVKLVDFGVSAQLDRTVGRRNTFIGTPYWMAPEVIACDENPDATYDFKS
DLWSLGITAIEMAEGAPPLCDMHPMRALFLIPRNPAPRLKSKKWSKKFQSFIESCLVKNH
SQRPAEQMLMKHPFIRDQPNERQVRIQLKDHIDRTRKKRGEKDETEYEYSGSEEEEEEND
SGEPSSILNLPRESTLRRDFLRLQLANKERSEALRRQQLLEQQQRENEEHKRQLLAERQKR
IEEQKEQRRRLEEQQRRREKELRKQQEREQRRHYEEQMRREEERRRAEHEQEYKRKQLEEQ
RQAERLQRQLKQERDYLVS LQHQRQEQRPEKKPLYHYKEGMSPSEKPAWAKEVEEERSRL
NRQSSPAMPHKVANRISDPNLPPRSESFISGVQPARTPPMLRPVDPQIPHLVAVKSQGP
ALTASQSVHEQPTKGLSGFQEALNVTSHRVEMPRQNSDPTSENPLPTRIEKFDRSSWLR

Fig. 8B
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Inventor(s): Gregory PLOWMAN
et al.

Attorney Docket No.: 034536-0688

QEEDI PPKV PQR TTSISP ALARKNSP GNGSALGPRLGSQPIRASNPDLRRTEPILESPLQ
RTSSGSSSSSSSTPSSQ RSSQ GGSQPGSQAGSSERTRVRANSKSEGSPVLPHEPAKV KPEE
SRDITRPSRPASYKKAIDEDLTALAKELRELRIEETNRPMKKVTDYSSSSSEESSESESESE
EDGESETHDGTVAVSDIPRLIPTGAPGSNEQYNVGMVGTHGLETSHADSFSGSISREGTL
MIRETSGEKKRSGHSDSNGFAGHINLPDLVQQSHSPAGTPTEGLGRVSTHSQEMDSGTEY
GMGSSTKASFTPFDPRVYQTSPTDEDEEDEESSAAALFTGELLRQEQA KLNEARKISV
NVNPTNIRPHSDTPEIRKYKKRFNSEILCAALWGVNLLVGTENGLMLLDRSGQGKVYNLI
NRRRFQQMDVLEGLNVLVTISGKKNKLRVYYLSWLRNRILHNDPEVEKKQGWITVGDLEG
CIHYKVVKYERIKFLVIALKNAVEIYAWAPKPYHKFMAFKSFADLQHKPLLVDLTVEEGQ
RLKVIFGSHTGFHVIDVDSGNSYDIYTPSHIQGNITPHAIVILPKTDGMEMLVCYEDEGV
YVNTYGRITKDVVLQWGEMPTSVAYIHSNQIMGWGEKAIEIRSVETGHLDGVFMHKRAQR
LKFLCERN DKVFFASVRSGGSSQVFFMTLNRNSMMNW

SEQ ID NO: 15 ZC3 human kin=1-255 coiled-coil=256-476 pro=477-680
B=681-983 Rab/RacBD =984-1326

AFGEVYEGRHVKTGQLAAIKVMDVTEDEEEEIKQEINMLKKYSHHRNIATYYGAFIKKSP
PGNDDQLWLVMFCGAGSVTDLVKNTKGNALKEDCIAYICREILRGLAHLHAHKVIHRDI
KGQNVLLTENA EVKLVD FGVSAQLDRTVGRRNTFIGTPYWMAPEVIACDENPDATYDYS
DIWSLGITAIEMAEGAPPLCDMHPMRALFLIPRNPPRLKSKKWSKKFIDFIDTCLIKTY
LSRPPTEQLLKFPFIRDQPTERQVRIQLKDHIDRSRKKRGEKEETEYEYSGSEEEEDDSHG
EEGEPSSIMNVPGESTLRREFLRLQQENKSNSEALKQQQQQLQQQQQQRDPEAHIKHLLHQR
QRRIEEQKEERRRVEEQRREREQRKLQEKEQRRLED MQALRREEERRQAEREQEYIRH
RLEEEQRQLEILQQQLLQEQALLLEYKRKQLEEQRQSERLQRQLQQEHAYLKS LQQQQQQ
QQLQKQQQQQLLPGDRKPLYHYGRGMNPADKPAWAREVEERTRMNKQQNSPLAKSKPGST
GPEPPIPQASPGPPGPLSQTPPMQRPVEPQEGPHKSLVAHRVPLKPYAAPVPRSQSLQDQ
PTRNLAAFPASHDPDPAIPAPTATPSARGAVIRQNSDPTSEGGPSPNPPAWVRPDNEAP
PKVPQRTSSIATALNTSGAGGSRPAQAVRARPRSNSAWQIYLQRRRAERGTPKPPGPPAQP
PGPPNASSNPDLRRSDPGWERSDSVLPASHGHL PQAGSLERNRVGVSSKPDSSPVLSPGN
KAKPDDHRSRPGRPADFVLLKERTLDEAPRPPKKAMDYSSSSSEEVESSEDDEEEGEGGPA
EGSRDTPGGRDGD TDSVSTMVVDVEEITGTQPPYGGGT MVVQRTPEEERNLLHADSNGY
TNLPDVVQPSHSPTENSKGQSPPSKDGSGDYQSRGLVKAPGKSSFTMFVDLGIYQPGGSG
DSIPITALVGGEGTRLDQLQYDVRKGSVVNVNPTNTRAHSETPEIRKYKKRFNSEILCAA
LWGVNLLVGTENGLMLLDRSGQGKVYGLIGRRRFQQMDVLEGLNLLITISGKR NKLRVYY
LSWLRNKILHNDPEVEKKQGWTTVGDMEGCGHYRVVKYERIKFLVIALKSSVEVYAWAPK
PYHKFMAFKSFADLPHRPLLVDLTVEEGQRLKVIYGSSAGFHAVDVDSGNSYDIYIPVHI
QSQITPHAIIFLPNTDGMEMLLCYEDEGVYVNTYGRIIKDVVLQWGEMPTSVAYICSNQI
MGWGEKAIEIRSVETGHLDGVFMHKRAQR LKFLCERN DKVFFASVRSGGSSQVYFMTLNR
NRIMNW

Fig. 8C
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Title: PAK5 SCREENING
METHODS

Inventor(s): Gregory PLOWMAN
et al.

Attorney Docket No.: 034536-0688

SEQ ID NO: 16 ZC4 human Nterm kin coiled-coil pro B=missing
Rab/RacBD=1-349

NVNPLYVSPACKKPLIHMYEKEFTSEICCGSLWGVNLLLGTRSNLYLMDRSGKADITKLI
RRRPFRQIQVLEPLNLLITISGHKNRLRVYHLTWLRNKLNNDPESKRRQEEMLKTEEAC
KAIDKLTGCEHFSVLQHEETTYIAIALKSSIHLYAWAPKSFDESTAIKVFTLDHKPVTV
DLAIGSEKRLKIFFSSADGYHLIDAEESEVMSDVTLPKNPLEIIIPQNIILPDCLGIGMM
LTFNAEALSVEANEQLFKKILEMWKDIPSSIAFECTQRTTGWGQKAIEVRSLSQSRVLESE
LKRRSIKKLRFLCTRGDKLFFTSTLRNHHSRVYFMTLGKLEELQSNDYD

SEQ ID NO: 18 KHS2 human Nterm=1-13 kin=14-273 A=274-346
Pro=347-534 RabBD =535-894

MNPGFDLSRRNPQEDFELIQRIGSGTYGDVYKARNVNTGELAAIKVIKLEPGEDFAVVQQ
EIIMMKDCKHPNIVAYFGSYLRDKLWICMEFCGGGSLQDIYHVTGPLSELQIAYVSRET
LQGLYYLHSGKGMHRDIKGANILLTDNGHVKLADFGVSAQITATIAKRKSFITPYWMAPE
EVAVERKGGYNQLCDLWAVGITAIELAEQPPMFDLHPMRALFLMTKSNFQPPKLKDKM
KWSNSFHHFVKMALTKNPKKRPTAEKLLQHPFVTQHLTRSLAIELLDKVNNDHSTYHDF
DDDDPEPLVAVPHRIHSTSRNVREEKTRSEITFGQVKFDPPLRKETEPHHELPDSDGFLD
SSEIYYTARSNLDLQLEYGQGHQGGYFLGANKSLLKSVEEELHQRGHVAHLEDDEGDDD
ESKHSTLKAKIPPLPPPKPSIFIPQEMHSTEDENQGTIKRCPSMSGSPAKPSQVPPRPPP
PRLPPHKPVALGNGMSSFQLNGERDGSQCQQQNEHRGTNLSRKEKKDVPKPI SNGLPPTP
KVHMGACFSKVFNGCPLKIHCASSWINPDTRDQYLIFGAEEGIYTLNLNELHETSMEQLF
PRRCTWLYVMNNCLLSISGKASQLYSHNLPGLFDYARQMQLPVAIPAHKLPDRILPRKF
SVSAKIPETKWCQKCCVVRNPYTGHKYLGCALQTSIVLLEWVEPMQKFMLIKHIDFPIPC
PLRMFEMLVVPEQEYPLVCVGVSRGRDFNQVVRFETVNPNSTSSWFTESDTPQTNVTHVT
QLERDITLVCLDCCIKIVNLQGRKSSRKLSSSELTDFQIESIVCLQDSVLAFWKHGMQG
RSFRSNEVTQEISDSTRIFRLLGSDRVVLESRPTDNPTANSNLYILAGHENSY

SEQ ID NO: 22 SULU1 human N=1-21 kin=22-277 A=278-427
coiled-coil1=428-637 B=638-751 coiled-coil2=752-898

MRKGVLDKPEIDDLFYKDDPEELFIGLHEIGHGSFGAVYFATNAHTNEVVAIKKMSYSGK
QTHEKWQDILKEVKFLRQLKHPNTIEYKGCYLKEHTAWLVMYCLGSASDLLLEVHKKPLQ
EVEIAAITHGALHGLAYLHSHALIHRDIKAGNILLTEPGQVKLADFGSASMASPANSFVG
TPYWMAPEVILAMDEGQYDGKVDIWSLGITCIELAERKPPLFNMNAMSALYHIAQNDSPT
LQSNEWTD SFRFVDYCLQKIPQERPTSAELLRHDFVRRDRPLRVLIDLIQRTKDAVREL
DNLQYRKMKKILFQETRNGPLNESQEDEEDSEHGTS LNREMDSLGSNHSIPSMSVSTGSQ
SSSVNSMQEVMDESSSELVMMHDESTINSSSSSVVHKKDHFVTRDEAGHGDP RPEPRPTQ
SVQSQUALHYRNRERFATIKSASLVTRQIHEHEQENELREQMSGYKRMRRQHQQQLIALEN
KLKAEMDEHRLKLQKEVETHANNSSIELEKLAKKQVAIIEKEAKVAAADEKKFQQQILAQ

Fig. 8D
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QKKDLTTFLESQKKQYKICKEKIKEEMNEDHSTPKKEKQERISKHKENLQHTQAEEEAHL
LTQQRLLYYDKNCRFFKRKIMIKRHEVEQQNIREELNKKRTQKEMEHAMLIRHDESTRELE
YRQLHTLQKLRLMDLIRLQHQTLELENQLEYNKKRRERELHRKHVMGLRQQPKNLKAMEMQIK
KQFQDTCKVQTKQYKALKNHQLEVTPKNEHKTILKTLKDEQTRKLAILAEQYEQSINEMM
ASQALRLDEAQEAECQALRLQLQQEMELLNAYQSKIKMQTEAQHERELQKLEQRVSLRRA
HLEQKIEEELAAALQKERSERIKNLLERQEREIETFDMESLRMGFGNLVTLDFPKEDYR

SEQ ID NO: 23 SULU3 human Nterm=missing kin partial=1-66 A=67-215
coiled-coil1=216-425 B=426-539 coiled-coil2=540-786 Ctail=687-786
IELAERKPPLFNMNAMSALYHIAQNESPTLQSNESDYFRNFVDSCLQKIPQDRPTSEEL
LKHIFVLRERPETVLIDLIQRTKDAVRELDNLQYRKMKKLLFQEAHNGPAVEAQEEEEEQ
DHGVGRTGTVNSVGSNQSIPSMSISASSQSSSVNSLPDVSDDKSELDMMEGDHTVMSNSS
VIHLKPEEENYREEGDPRTASDPQSPQVSRHKSHYRNREHFATIRTSASLVTRQMQEHE
QDSELREQMSGYKRMRRQHQQKQKQMTLENKLKAEEMDEHRLRLDKDLETQRNNFAAEMEKL
KKHQAAMEKEAKVMSNEEKKFQQHIQAQQKKELNSFLESQKREYKLRKEQLKEELNENQS
TPKKEKQEWLSKQKENIQHFQAEEEANLLRRQRQYLELECRRFKRRMLLGRHNLEQDLVR
EELNKRQTQKDLEHAMLLRQHESMQELEFRHLNTIQKMRCELIRLQHQTLELTNQLEYNKR
RERELRRKHVMEVRQQPKSLKSKELQIKKQFQDTCKIQTRQYKALRNHLETTTPKSEHKA
VLKRLKEEQTRKLAILAEQYDHSINEMLSTQALRLDEAQEAECQVLKMQQLQQELELLNAY
QSKIKMQAEAQHDRELRELEQRVSLRRALLEQKIEEEMLALQNERTERIRSLLERQAREI
EAFDSESMRLGFSNMVLSNLSPEAFSHSYPGASGWSHNPTGGPGPHWGHMGGPPQAWGH
PMQGGPQPWGHPSGPMQGVPRGSSMGVRNSPQALRRTASGGRTAQGMSRSTSVTSQISNG
SHMSYT

SEQ ID NO: 24 SULU3 murine Nterm=1-25 kin=26-273 A=274-422
cc1=423-632 B=633-748 cc2=missing
MPSTNRAGSLKDPEIAELFFKEDPEKLFTDLREIGHGSFGAVYFARDVRTNEVVAIKKMS
YSGKQSTEKWQDIIKEVKFLQRIKHPNSIEYKGCYLREHTAWLVMYCLGSASDLLEVHK
KPLQEVEIAAITHGALQGLAYLHSHTMIHRDIKAGNILLTEPGQVKLADFGSASMASPAN
SFVGTPTYWMAPEVILAMDEGQYDGKVDVWSLGITCIELAERKPPLFNMNAMSALYHIAQN
ESPTLQSNMNDSCCLQKIPQDRPTSEELLKHMFLVLRERPETVLIDLIQRTKDAVRELDNLQ
YRKMKKLLFQEAHNGPAVEAQEEEEEQDHGVGRTGTVNSVGSNQSIPSMSISASSQSSSV
NSLPDASDDKSELDMMEGDHTVMSNSSVIHLKPEEENYQEEGDPRTASDPQSPQVSRH
KSHYRNREHFATIRTSASLVTRQMQEHEQDSELREQMSGYKRMRRQHQQKQKQMTLENKLKAE
MDEHRLRLDKDLETQRNNFAAEMEKLKKHQAAMEKEAKVMANEEKKFQQHIQAQQKKEL
NSFLESQKREYKLRKEQLKEELNENQSTPKKEKQEWLSKQKENIQHFQAEEEANLLRRQR
QYLELECRRFKRRMLLGRHNLEQDLVREELNKRQTQKDLEHAMLLRQHESMQELEFRHLN
TIQKMRCELIRLQHQTLELTNQLEYNKKRRERELRRKHVMEVRQQPKSLKSKELQIKKQFQD

Fig. 8E
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Inventor(s): Gregory PLOWMAN
et al.

Attorney Docket No.: 034536-0688

TCKIQTRQYKALRNHLLLETPKNEHKAI

SEQ ID NO: 26 GEK2 human N=1-33 kin=34-294 A=295-337 B=338-472 215
coiled-coil1=473-724 215 coiled-coil2=725-912

MAFANFRRLRLSTFEKRKSREYEHVRRDLDPNEVWEIVGELGDGAFGKVYKAKNKETGA
LAAAKVIETKSEEELEDYIVEIEILATCDHPYIVKLLGAYYHDGKLWIMIEFCPGGAVDA
IMLELDRGLTEPQIQVVCQMLEALNFLHSKRRIHRDLKAGNVLMTLEGDIRLADFGVSA
KNLKTQKRDSFIGTPYWMAPEVVMCETMKDTPYDYKADIWSLGITLIEMAQIEPPHHEL
NPMRVLLKIAKSDPPTLLTPSKWSVEFRDFLKIALDKNPETRPSAAQLLEHPFVSSITSN
KALRELVAEAKAEVMEEIEDGRDEGEEDAVDAASTLENHTQNSSEVSPPSLNADKPLEE
SPSTPLAPSQSQDSVNEPCSQPSGDRSLQTTSPPVVAPGNENGLAVPVPLRKSRPVSMDA
RIQVAQEKQVAEQGGDLSPAANRSQKASQSRPNSSALETLGGEKLANGSLEPPAQAAPGP
SKRSDSDCSSLCTSESMDYGTNLSTDLSLNKEMGSLSIKDPKLYKKTLLKRTRKFVVDGVEV
SITTSKIISEDEKKDEEMRFLRRQELRELRLLOKKEHRNQTQLSNKHELQLEQMHRFEQ
EINAKKKFFDTELENLERQQKQQVEKMEQDHAVRRREEARRIRLEQDRDYTRFQEQLKLM
KKEVKNEVEKLPRQQRKESMKQKMEEHTQKKQLLDRDFVAKQKEDLELAMKRLTTDNRE
ICDKERECLMKKQELLRDREAALWEMEEHQLQERHQLVKQQLKDQYFLQRHELLRKHEKE
REQMQRYNQRMIEQLKVRQQQEKARLPKIQRSEGKTRMAMYKKS LHINGGGSAAEQREKI
KQFSQQEEKRQKSERLQQQQKHENQMRDMLAQCESNMSELQQLQNEKCHLLVEHETQKLK
ALDESHNQNKE

SEQ ID NO: 29 PAK4 human Rac=1-51 A=52-224 Nterm=225-393
kin=394-658 Ctail=659-681 residues 13-23

(SAPQNFQHRVH)= Cdc42 /Rac-binding motif

MFRKKKKKRPEISAPQNFQHRVHTSFDPKEGKFVGLPPQWQNI LDTLRRPKPVVDPSRIT
RVQLQPMKTVVRGSAMPVDGYISGLLNDIQKLSVISSNTLRGRSPTSRRRAQSLGLLGDE
HWATDPDMYLQSPQSERTPHGLYLSCNGGTPAGHKQMPWPEPQSPRVLPNGLAAKAQSL
GPAEFQGASQRCLQLGACLQSSPPGASPTGTNRHGMKAAKHGSEEARPQSCLVGSATGR
PGGEGSPSPKTRESSLKRRLLFRSMFLSTAATAPPSSSKPGPPPQSKPNSSFRPPQKDNPP
SLVAKAQS LPSDQPVGTFSP LTTSDTSSPQKSLRTAPATGQLPGRSSPAGSPRTWHAQIS
TSNLYLPQDPTVAKGALAGEDTG VVTHEQFKAALRMVVDQGDPRLLLD SYVKIGEGSTGI
VCLAREKHSGRQVAVKMMDLRKQQRRELLFNEVVIMRDYQHFN VVEMYKSYLVGEELWVL
MEFLQGGALTDIVSQVRLNEEQIATVCEAVLQALAYLHAQGV IHRDIKSDSILLTLDGRV
KLSDFGFCAQISKDVPKRKSLVGTPYWMAPEVISRSLYATEVDIWSLGIMVIEMVDGEP
YFSDSPVQAMKRLRDSPPP KLN SHKVSPVLRDFLERMLVRDPQERATAQELLDHPFLQ
TGLPECLVPLIQLYRKQTSTC

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Inventor(s): Gregory PLOWMAN
et al.

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Fig. 8F
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SEQ ID NO: 30 PAK5 human Rac A=missing Nterm partial=1-114
kin=115-379 Ctail=380-398

ASGAKLAAGRPFNTYPRADTDHPSRGAQGEPHDVAPNGPSAGGLAIPQSSSSSSSRPPTRA
RGAPSPGVLGPHASEPQLAPPACTPAAPAVPGPPGPRSPQREPQRVSHEQFRAALQLVVD
PGDPRSYLDNFIKIGEGSTGIVCIATVRSSGKLVAVKKMDLRKQQRRELLFNEVVIMRDY
QHENVVEMYNSYLVGDELWVVMEFLEGGALTDIVTHTRMNEEQIAAVCLAVLQALSVLHA
QGVIHRDIKSDSILLTHDGRVKLSDFGCAQVSKEVPRRKSLVGTPYWMAPELISRLPYG
PEVDIWSLGIMVIEMVDGEPPYFNEPPLKAMKMIRDNLPPRLKNLHKVSPSLKGFLDRLL
VRDPAQRATAAELLKHPFLAKAGPPASIVPLMRQNRTR

Fig. 8G

SEQ ID NO: 1 STLK2 HUMAN

TAACAGCCCACCTCCTAGCCCCGGGCTACGCGCCGCCAGCCCAGTAACCCCCACTTTTGTG
TGTCCTCCCAGGCCCCGATCGAAAAGCCTGGGAGGGCCGCCGAACCTACCCCCGGAGGGAG
GAGCCAGTCCGAACCCAAGGCGCCACCGCCGCAGAAGCGGAGCGAGGCAGCATTTCGCCTC
CATGGCCCCACTCGCCGGTGGGTGTCCAAGTGCCTGGGATGCAGAATAACATAGCTGATCC
AGAAGAAGTGTTCACAAAATTAGAGCGCATTGGGAAAGGCTCATTTGGGGAAGTTTTCAA
AGGAATTGATAACCGTACCCAGCAAGTCGTTGCTATTAAAATCATAGACCTTGAGGAAGC
CGAAGATGAAATAGAAGACATTCAGCAAGAAATAACTGTCTTGAGTCAATGTGACAGCTC
ATATGTAACAAAATACTATGGGTCATATTTAAAGGGGTCTAAATTATGGATAATAATGGA
ATACCTGGGCGGTGGTTCAGCACTGGATCTTCTTCGAGCTGGTCCATTTGATGAGTTCCA
GATTGCTACCATGCTAAAGGAAATTTTAAAAGGTCTGGACTATCTGCATTCAGAAAAGAA
AATTCACCGAGACATAAAAGCTGCCAATGTCTTGCTCTCAGAACAAGGAGATGTTAAACT
TGCTGATTTTGGAGTTGCTGGTCAGCTGACAGATACACAGATTAAAAGAAATACCTTTGT
GGGAACTCCATTTTGGATGGCTCCTGAAGTTATTCAACAGTCAGCTTATGACTCAAAAGC
TGACATTTTGGTCATTGGGAATTACTGCTATTGAACTAGCCAAGGGAGAGCCACCTAACTC
CGATATGCATCCAATGAGAGTTCTGTTTCTTATTCCCAAAAACAATCCTCCAACCTCTTGT
TGGAGACTTTACTAAGTCTTTTAAGGAGTTTATTGATGCTTGCCTGAACAAAGATCCATC
ATTTTCGTCCTACAGCAAAAGAACTTCTGAAACACAAATTCATTGTAAAAAATTCAAAGAA
GACTTCTTATCTGACTGAACTGATAGATCGTTTTAAGAGATGGAAGGCAGAAGGACACAG
TGATGATGAATCTGATTCCGAGGGCTCTGATTCCGGAATCTACCAGCAGGGAAAACAATAC
TCATCCTGAATGGAGCTTTACCACCGTACGAAAGAAGCCTGATCCAAAGAAAGTACAGAA
TGGGGCAGAGCAAGATCTTGTGCAAACCTGAGTTGTTTGTCTATGATAATCACACCTGC
ATTTGCTGAACTTAAACAGCAGGACGAGAATAACGCTAGCAGGAATCAGGCGATTGAAGA
ACTCGAGAAAAGTATTGCTGTGGCTGAAGCCGCCTGTCCCGGCATCACAGATAAAATGGT
GAAGAACTAATTGAAAAATTTCAAAGGTGTTGAGCAGACGAATCCCCCTAAGAACTTA
TTATTGGCTTCTGTTTCATATGGACCCAGAGAGCCCCACCAAACCTACGTCAAGATTAAC
AATGCTTAACCCATGAGCTCCATGTGCCTTTTGGATCTTTGCAACACTGAAGATTTGGAA
GAAGCTATTAACTATTTTGTGATGGCGTTTATCATTTTATATTTTGAAGGATTATTTT
GTAAGGAATAACTTTTAATACTATAGTTTCACCTGTATTCTAGTAAATGTTGAGACACCG
TTTTGCTTTTAAGTATCCCTATTTCTTAAGTTACGAGGATGAATACCTTTTACATTTTGA
TCTTTAGTTGACTCTACAGTCATGAAACATACAGGTCTTTCAAAGTCATTCTCAATATTC
AGCTTTTGTAAATTATCAAGCTTCAAAAAGCTTTTTTTTAAAAAACAACATGCATATT
CTAAAAATGACTATTGGTGGGGAGGTGTAAATAAGTCATACCTTCTTAAAACAGAAAATT
TAAGTAAAGTCTTTTAAATGAAACCTGTAAAAGTATTGACTCTTCTACCAAGTTGGTATG
ATATTCCAGGCAGCTCAATGATTATCACATTTGAGACCCTGTGTTTGAAGCATTTACAGG
CAATGTACAGCAACAGAGGTACCTCTTGGTGTATAGTATTTACATTCTCTTTTAGGTAGA
AGAGGCAATTTTACCCTTATTTTACATGGTTAGAAATTTAAAGCAAGATCATTTACCCAA

Fig. 9A

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Title: PAK5 SCREENING
METHODS

Inventor(s): Gregory PLOWMAN
et al.

Attorney Docket No.: 034536-0688

GGATAGGTGTTTGGTAATGTTGAAGGAGTTAGTCTGGCTTCATGTTTTACATCTTCAACT
AAAATCCCATACTATCTGCTTGGATTTGGAGAGCCAAAAAATAAAGCTGATTGTCATGTG
ATTAATATCTGATCAACAGGTATGAATATAACTTAAATCAGCATATTTTTGCCATGGTA
ATAAATTGTCCTATAAACTATTTATATATTTTTTGTTCCTCATAATTATCACTAATAAGCA
TCAGTTTGTGTTTTTAAAAGGATATTTAAGTGAGCATTTTCTAGTTCATATGAAAATAA
CCATAGTACAGGATGATTTCTGTCCACACAAAGGTTAAATTAGATTGCACAGTTAATTTT
CACTTATATTTATGGTACTATTATGTGGGTGATGCCTTTTTCTTTTAAGCCCAGTACATA
TATTATGCCTGCCTAAGTTCTGAACTGGGGCTGTATTTAGTAGTTGTAGAATTATTGAT
ATTTAGTTTTGATAGCTAATGTTTAATTGTTTGGATCTGCACAGTTTGGTTTTTGCACAA
AAGTCATTTAAAAAAATCTGAGTAATTGTCAAATATTAAGAAAGATATTCTTCCTGTA
AGGAATACAGTTTTTAGTCAAAGTGGCCATTACATCCTCTTTTTAATTTACATAATACAG
ATACTTGAGAAAGTTGTTGTGGTGTGTATGCCAAGAAAATTCTTTTTATTGGTGCCTAT
ATFGTAACAATTATTTTTAATGCATTGTATTTTGAAGTAACGGTTCAGTTAAATTTTTCA
CCTGCTGTGTAACGAAACACAATTACAGTTTATAATCATCTGTAGAAGTCTGGAGATAA
TTTTGCAACTCATGTTATGGGTAAATGAATATTTTTGTAAAAGTAAAAGCAACAAFTT
ATAAATTGATTATTTGAACTTTACAACACAATTGCATCCCAAATACAAATTGTATTGCT
TATTCATTATAGCTATTCGTCTGTAAATCTGTTTCTAGGTGAAGCATACTCCAGTGTTTT
AGGGGTTTTGAAAATAAATATTTAAATTTACAGTCAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAA

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GACAGCAGCGCCGGCCCCGGCAGCTCCCGCGGCCCCGGCCCCGGCCCCGGCCCCGGCCCC
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CGGCAGTGGAGCTACTGCTGTGGTTCAGGCAGCCCTATGCAAACCCAGGCAAGAACGTGT
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GGTCAAAGATGAACTTTGGCTGGTCATGAAATTACTAAGTGGAGGTTCAATGTTGGATAT
CATAAAATACATTGTCAACCGAGGAGAACACAAGAATGGAGTTCTGGAAGAGGCAATAAT
AGCAACAATTCTTAAAGAGGTTTTTGAAGGCTTAGACTATCTACACAGAAACGGTCAGAT
TCACAGGGATTTGAAAGCTGGTAATATTCTTCTGGGTGAGGATGGTTCAGTACAAATAGC
AGATTTTGGGGTAAGTGC GTTCCTAGCAACAGGGGGTGATGTTACCCGAAATAAAGTAAG
AAAAACATTCGTTGGCACCCCATGTTGGATGGCTCCTGAAGTCATGGAACAGGTGAGAGG
CTATGACTTCAAGGCTGACATGTGGAGTTTTTGAATAACTGCCATTGAATTAGCAACAGG
AGCAGCGCCTTATCACAATATCCTCCCATGAAAGTGTTAATGTTGACTTTGCAAAATGA
TCCACCCACTTTGGAAACAGGGGTAGAGGATAAAGAAATGATGAAAAAGTACGGCAAGTC
CTTTAGAAAATTACTTTCACTGTGTCTTCAGAAAGATCCTTCCAAAAGGCCACAGCAGC
AGAACTTTTAAAATGCAAATTCTTCCAGAAAGCCAAGAACAGAGAGTACCTGATTGAGAA
GCTGCTTACAAGAACACCAGACATAGCCCAAAGAGCCAAAAGGTAAGAAGAGTTCTCTGG

Fig. 9B
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Title: PAK5 SCREENING
METHODS
Inventor(s): Gregory PLOWMAN
et al.
Attorney Docket No.: 034536-0688

GTCAAGTGGTCACCTTCATAAAACCGAAGACGGGGACTGGGAGTGGAGTGACGACGAGAT
GGATGAGAAGAGCGAAGAAGGGAAAGCAGCTTTTTCTCAGGAAAAGTCACGAAGAGTAAA
AGAAGAAAATCCAGAGATTGCAGTGAGTGCCAGCACCATCCCCGAACAAATACAGTCCCT
CTCTGTGCACGACTCTCAGGGCCCCACCCAATGCTAATGAAGACTACAGAGAAGCTTCTTC
TTGTGCCGTGAACCTCGTTTTGAGATTAAGAACTCCAGAAAGGAACTTAATGACATACG
ATTTGAGTTTACTCCAGGAAGAGATACAGCAGATGGTGTATCTCAGGAGCTCTTCTCTGC
TGGCTTGGTGGATGGTCACGATGTAGTTATAGTGGCTGCTAATTTACAGAAGATTGTAGA
TGATCCCCAAAGCTTTAAAAACATTGACATTTAAGTTGGCTTCTGGCTGTGATGGGTGCGA
GATTCCTGATGAAGTGAAGCTGATTGGGTTTGCTCAGTTGAGTGTGAGCTGATGTATGTC
CCTTGATGTCACCCTGATCTGTGTCATGCCCCACCGCCACCCCTACTCCCTTCAACCCTCCC
TCTTTCTGCCCATTTCTCTCCACCCCTCACTCCCATTTCTTAGCAAAATCAGAAGATTG
TGAAGAGGCCGGCTTCAACAAAATGGGATAAAAAAATAATTTTTTAAACTTACAACACT
CCGAGTTCTGCTTTATTCTCTAGCAATCCACAGTACAAGAACAAGCAAATGCCACAGCTG
CACGACTGTTGCTCATTTTTCCAAAAGCTATTTAATATTCTTAGCAATCAATTTGGATAT
CCCTTAAGTGAAAAGAATCTGAAATACACTCAGGTGGTCTTATTTATTGGCAACAAAAGG
AATTTTCTATCCAGAAGCCTATTTCTCCTTTCATTGTTGTTATTTCTGTTATAATACTTT
AATTGTACATCTGACAATACTGCCTCTTTTATGTTGTATTTAGAAATTAATATACTTATA
AAATTAAGATTTATTAGCCAACTTGAATTCTAGTTTTAAACTGACTGTGAATTTTATT
TTTCATATATTTATGCATTACACACCTTAGCTATAAGAAAAAAGGGTTTTGATTATATG
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GTAACCTCTAAATTTTGAAATGACTGAATTAGGAATTTGGATGCTTATTTCTTTTAGTCTG
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CTTTCACATTAAGAATGTGCCTGAGGCTGCTTTACTCTGGAATAGTCTCAGATCTAAAT
TTCCTCTATATAAGGTGGCATATGTTAAGTTTTGCTTCATTGGACCGTTTAGAATGCTAT
GTAATGTTGCCATTCTGTTAGATTGCTAACTATATACCCATCTCTGATTTGGCTCTCC
TTAAGTGATAGGATTTGTATTCTAAAGGTGATAAACTTGAAAATATCAGAATCTGAGTT
TACTTTGAAATTTTGCAGAATACCCAGGTGGAGTGAAAATTGGAAGGGTTTTGTGCAATG
ACTAAAAGGTAAAACGCTGTAAAGGTTCAAGAATCAATACTTTCAACCCAAGTAGCCCTC
TGCTTGACTGTATATTATGGAAGTAGTAAACCTTAGGATTTTGAAAATTGGAGTCTAATC
TTTCAAGGAGGTGGGCTCCCAGGATGGTACCATTGCTCTTTCTAGCTAACCTAGATAT
GGCAGCTCTTTAATGTACTTCAAAAAGCAAATATATATTACTAAGGAAAAAAGTTATTT
ATAATTGCCTTGTCATAATTGTTAAGGTGTTCTAGAGCCATTTGCATACAATTTAATGTA
ATTTCAATCCATTCTATTGTTTACACAACGATTACTCGAAGATGACTGCAAAGGTAAAAG
GAAAATAAAAGTGTATTGCACAATGAAAAA

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CAAAAGTGGAGTCCTAGATGANTCTACCATTGCTACGATACTCCGAGAAGTACTGGAAGG
GCTGGAATATCTGCATAAAANTGGACAGATCCACAGAGATGTGAAAGCTGGAACATTCT

Fig. 9C
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Title: PAK5 SCREENING
METHODS

Inventor(s): Gregory PLOWMAN
et al.

Attorney Docket No.: 034536-0688

TNTTGGAGAAGATGGCTCAGTACAGATTTTCAGACTTTGGGGTTAGTGCTTTTTTAGCAAC
TGGTGGTGATATTACCCGAAATAAAGTGAGAAAGACCTTTGTTGGCACCCCTTGTTGGAT
GGCACCTGAAGTTATGGAACAGGTCCGTGGTTATGATTTCAAAGCTGATATTTGGAGTTT
TGGAATTACAGCAATTGAATTGGCTACAGGGGCGGCTCCTTATCATAAATATCCACCAAT
GAAGGTTTTAATGCTGACACTGCAGAACGATCCTCCTTCTTTGGAAACTGGTGTTCAAGA
TAAAGAAATGCTGAAAAAATATGGAAAATCATTAGAAAAATGATTTTCATTGTGCCTTCA
AAAAGATCCAGAAAAAAGACCAACAGCAGCAGAACTATTAAGGCACAAATTTTTCCAGAA
AGCAAAGAATAAAGAATTTCTTCAAGAAAAAACATTGCAGAGAGCACCAACCATTTCTGA
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TGGAGGCTGGGAGTGGAGTGATGATGAATTTGATGAAGAAAGTGAGGAAGGGAAAGCAGC
AATTTCACAACTCAGGTCTCCCCGAGTGAAAGAATCAATATCAAATTCTGAGCTCTTTCC
AACAACCTGATCCTGTGGGTACTTTGCTCCAAGTTCCAGAACAGATCTCTGCTCATCTACC
TCAGCCAGCTGGGCAGATTGCTACACAGCCAACTCAAGTCTCTCTCCCACCCACCGCAGA
GCCAGCAAAAACAGCTCAGGCTTTGTCTTCAGGATCAGGTTCAACAAGAAACCAAGATCCC
AATCAGTCTAGTACTAAGATTAAGGAATTCCAAAAAAGAACTAAATGATATTCGATTTGA
ATTTACTCCTGGGAGAGATACAGCAGAGGGTGTCTCTCAGGAACTCATTTCTGCTGGCCT
GGTCGACGGAAGGGATTTAGTAATAGTGGCAGCTAATTTGCAGAAAATTGTGGAAGAACC
TCAGTCAAATCGATCTGTCACTTTCAAACCTGGCATCTGGTGTCGAAGGCTCAGATATTCC
TGATGATGGTAAACTGATAGGATTTGCCAGCTCAGCATCAGCTAAACCACAACCCTGGA
AGAGGCGGCCTAAGGAGATTCCACACATGCGTATCTCTGTTGCTTCTATTGGCCTAAACC
CACTACTGCCAAAGAACCCAGCAACAAACCTCCCGGCTAGGAGCTTTAGAAGTCTTTATG
TTCTTCCTGCCATCATTCTCTCTTTTCCCACAGGGAAAGAAAAGTTGGATCACTAGTGGC
CAGCATCCCCAGAGTTCCGTTAGTAACTTACTTCATATGTCCCCTGTCTTCTCTCATCT
GAGAAGTGGCCCATGTGCTTCAAGGCCCAGGAGGGGAGATCTGTCAGCTCATTCTTGCCTT
ACTCCAATGATGGCCCAGGTGGAAAAGTAGCAGCTGTATCGGGCTTCCTCATCCTGCCTG
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TTCTTCATTGCTCTCTCCAGAAAGGGTTGCTAGCCTTAACTTCAGCTGGTGCAAAACATC
TGACTGTAGCCGAACCTTCAGCCATCAGATCCTTCAAAGTGGAACCTTTGGATTGTTTTTAC
AGACAACATCGAGTAATGGCTTGTAATGTGAATTTTGCCAGAGGTGGTTTTTGAACAGG
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CTCAATCCTCCCATGAAAATCAGTTCGCCTGGCCTCCAAGTCGTGAGGAAATGGGTATGC
AAGGCTGAGATTTCTACAGCAATAAAGGAGACACACACTGGGCCAGAGAGGCCTGCCTTC
TGCCTGCTCTCCTGCACTGACCCTTTGGAGGGGGTCTCTGTGTGCTGAAGCTAACTCAAG
ATGGAAAGTGAAACCACATGTGCCGTGACCTTTAGGTTTTATGAGTAGACAGTGTTTCATT
TGATTTTCTACAGAAATAATATAAATTATTCTTTAGGTTTTAAAAAAGAGCACTCATAATG

Fig. 9D
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Title: PAK5 SCREENING
METHODS
Inventor(s): Gregory PLOWMAN
et al.
Attorney Docket No.: 034536-0688

CAATATGTGAATAATCAGTGAGGTTGATTTTTCTTTTTCTACCGTTTCATAGTCTTTG
TCTAACTGCTAGTAACCCCTACCGAGTTTTATATATGAGTGGGATACTCAATCTGGCCTTA
AAAAGATACACAAAGATGGGCTGTGGGTCCCTGGAAAGGGGGAGAGTTGCCCTTTACAGA
ATCACTCGAGCCCTTTCCAGCACTGTTGGTCTGATGAACAAGGTTGTTTTACCTTATTTT
CTCTTGGAACATATCTGAAAACCTTCCCCACAAATAACTTGTACACCTTTTGTTCATT
CTGAGTCTTTAGTTTTAGTCATGGGCTTTCTTCACCTGCTCTAGGTGCAAAGGCATGTTG
GGAAAGAGATGGATGTTGGGGAGGAAGAGAGGAGATGGATTTTCAAGTTGGGAGTTAGGAGG
AGAGTAGGTGAGATGATCAGACACCGGAGTTCAACGTCCCAGCAGTCTTGGTAAAAGGAG
GGAGCCTGCTGAGCCAGGAGGGAGAAAAGAAGATTGACCAGCTTGCTAGAAAAATACTTA
GCTTTTCTTTTTCTTTTTTTGTGGAGGGGGGACGGAGAGGAACAAGGATGGGGAGGTAGG
AATGAGGTATAGAAAAGAGATAGCATCTTCTTTGGCACAAGACTAGTGGCTTACCGCTTA
CCTTAGAGTTTTGTTTTTTTTTTTTTCAAACCCATCAAATCTACTTATTTATGAATCCAA
GGGGTGGCAGCATCACTCTGTTCTAGCATTCTTTGTGGAGATGGTCTGGTGCCTAGCTGG
GAGTGAGCAGCAGCCCATCCCCTGTTCACTTTCTCTAGCCCATCATTACCTGTGAACTGC
AGTGGGGCAGTCATGGCAAATAGAATTGGGCTGGGGTTTCTCCTTCTTTTCAGTTTATTG
TTTGCCCTGCTAGGAATTAGAAGACAGACACCATGTCCCAGGACAGTGTTACTTCTTCTG
CATGATGTGTGGTAGACTCCCTTTGCTGGCTTGTGCAGTGATACTGAGAAAATACATGAA
CAGAACTGCCCAGGTGGAACAGCACGTAACCTAGTGAGTGACTGTACTCCTTTCTAGGA
ATGCTGATTCAGAGTGACCTCTTTGACTAGGTCCCAGGATCCCCTTGTCCCTGGAGTAG
GGAATACTATAGCACAAAGTAATATGTGCCAATGCTATTTGTGAAATGTTTGGTCTTTC
TAAACGACTAAAGGATTTGTTGGGTTTTTGCTTAAGTTTTGAACCAAATCCTAGAGCCAG
CTGATAATATTTAATAATCTGGAGGAGAGAATAATGATGTACCAATAAGTGGAGATTCTT
CCTTATGATGTATGCTAGGTTATGGAAGATGTAAAATATTCAACTTTTTCTCCTTTTTT
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AAAAAAAAAAAAAAAAAAAA

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CTCATCTGTACACACTTCATGGATGGCATGAATGAGCTGGCGATTGCTTACATCCTGCAG
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GCCAGCCACATCCTGATCTCTGTGGATGGGAAGGTCTACCTGTCTGGTTTGGCGCAGCAAC
CTCAGCATGATAAGCCATGGGCAGCGGCAGCGAGTGGTCCACGATTTTCCCAAGTACAGT
GTCAAGGTTCTGCCGTGGCTCAGCCCCGAGGTCTCCAGCAGAATCTCCAGGGTTATGAT
GCCAAGTCTGACATCTACAGTGTGGGAATCACAGCCTGTGAACTGGCCAACGGCCATGTC
CCCTTTAAGGATATGCCTGCCACCCAGATGCTGCTAGAGAACTGAACGGCACAGTGCCC
TGCCTGTTGGATACCAGCACCATCCCCGCTGAGGAGCTGACCATGAGCCCTTCGCGCTCA
GTGGCCAACTCTGGCCTGAGTGACAGCCTGACCACCAGCACCCCCCGGCCCTCCAACGGT
GACTCGCCCTCCCACCCCTACCACCGAACCTTCTCCCCCACTTCCACCACTTTGTGGAG
CAGTGCCTTCAGCGCAACCCGGATGCCAGGCCAGTGCCAGCACCTCCTGAACCACTCT

Fig. 9E
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Title: PAK5 SCREENING
METHODS
Inventor(s): Gregory PLOWMAN
et al.
Attorney Docket No.: 034536-0688

TTCTTCAAGCAGATCAAGCGACGTGCCTCAGAGGCTTTGCCCGAATTGCTTCGTCCTGTC
ACCCCATCACCAATTTTGAGGGCAGCCAGTCTCAGGACCACAGTGGAAATCTTTGGCCTG
GTAACAAACCTGGAAGAGCTGGAGGTGGACGATTGGGAGTTCTGAGCCTCTGCAAACCTGT
GCGCATTCTCCAGCCAGGGATGCAGAGGCCACCCAGAGGCCCTTCCTGAGGGCCGGCCAC
ATTCCCGCCCTCCTGGGCAGATTGGGTAGAAAGGACATTCTTCCAGGAAAGTTGACTGCT
GACTGATTGGGAAAGAAAATCCTGGAGAGATACTTCACTGCTCCAAGGCTTTTGAGACAC
AAGGGAATCTCAACAACCAGGGATCAGGAGGGTCCAAAGCCGACATTCCCAGTCCTGTGA
GCTCAGGTGACCTCCTCCGCAGAAGAGAGATGCTGCTCTGGCCCTGGGAGCTGAATTCCA
AGCCCAGGGTTTGGCTCCTTAAACCCGAGGACCGCCACCTCTTCCCAGTGCTTGCGACCA
GCCTCATTCTATTTAACTTTGCTCTCAGATGCCTCAGATGCTATAGGTCAGTGAAAGGGC
AAGTAGTAAGCTGCCTGCCTCCCTTCCCTCAGACCTCTCCCTCATAATTCCAGAGAAGGG
CATTTCTGTCTTTTTAAGCACAGACTAAGGCTGGAACAGTCCATCCTTATCCCTCTTCTG
GCTTGGGCCCTGACACCTAAGTCTTTCCACGGTTTATGTGTGTGCCTCATTCTTTCCC
ACCAAGAATCCATCTTAGCGCCTCCTGCCAGCTGCCCTGGTGCTTTCTCCAAGGGCCATC
AGTGTCTTGCCTAGCTTGAGGGCTTAAGTCCTTATGCTGTGTTAGTTTCGTTGTCAGAAC
AAATTAAAATTTTCAGAGACGCTG

SEQ ID NO: 9 ZC1 HUMAN

GAGACCATGGCGAACGACTCTCCCGCGAAAAGTCTGGTGGACATCGACCTCTCCTCCCTG
CGGGATCCTGCTGGGATTTTTTGAGCTGGTGGAAAGTGGTTGGAAATGGCACCTATGGACAA
GTCTATAAGGGTCGACATGTTAAAACGGGTCAGTTGGCAGCCATCAAAGTTATGGATGTC
ACTGAGGATGAAGAGGAAGAAATCAAACCTGGAGATAAATATGCTAAAGAAATACTCTCAT
CACAGAAACATTGCAACATATTATGGTGCTTTTCATCAAAAAGAGCCCTCCAGGACATGAT
GACCAACTCTGGCTTGTTATGGAGTTCTGTGGGGCTGGGTCCATTACAGACCTTGTGAAG
AACACCAAAGGGAACACACTCAAAGAAGACTGGATCGCTTACATCTCCAGAGAAATCCTG
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GTCATCGCCTGTGATGAGAACCAGATGCCACCTATGATTACAGAAGTGATCTTTGGTCT
TGTGGCATTACAGCCATTGAGATGGCAGAAGGTGCTCCCCCTCTCTGTGACATGCATCCA
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TCGAAGAAGTTTTTTAGTTTTATAGAAGGGTGCCTGGTGAAGAATTACATGCAGCGGGCC
TCTACAGAGCAGCTTTTGAAACATCCTTTTATAAGGGATCAGCCAAATGAAAGGCAAGTT
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ACTGAGTATGAGTACAGTGGGAGTGAGGAAGAAGAGGAGGAAGTGCTGAACAGGAAGGA
GAGCCAAGTTCCATTGTGAACGTGCCTGGTGAGTCTACTCTTCGCCGAGATTTCTTGAGA
CTGCAGCAGGAGAACAAGGAACGTTCCGAGGCTCTTCGGAGACAACAGTTACTACAGGAG
CAACAGCTCCGGGAGCAGGAAGAATATAAAAGGCAACTGCTGGCAGAGAGACAGAAGCGG

Fig. 9F
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METHODS
Inventor(s): Gregory PLOWMAN
et al.
Attorney Docket No.: 034536-0688

ATTGAGCAGCAGAAAGAACAGAGGCGACGGCTAGAAGAGCAACAAAGGAGAGAGCGGGAA
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AGGAGAGTTGAAAGAGAACAGGAGTATATCAGGCGACAGCTAGAAGAGGAGCAGCGGCAC
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CGGGAGATGGAGGAGCACCGGCAGGCAGAGAGGCTCCAGAGGCAGTTGCAACAAGAACAA
GCATATCTCCTGTCTCTACAGCATGACCATAGGAGGCGCACCCGCAGCACTCGCAGCAG
CCGCCACCACCGCAGCAGGAAAGGAGCAAGCCAAGCTTCCATGCTCCCGAGCCCAAAGCC
CACTACGAGCCTGCTGACCGAGCGCGAGAGGTGGAAGATAGATTTAGGAAAATAACCAC
AGCTCCCCTGAAGCCCAGTCTAAGCAGACAGGCAGAGTATTGGAGGCCACCAGTGCCCTCC
CGATCAGAGTCTTTTTTCCAATGGCAACTCCGAGTCTGTGCATCCCGCCCTGCAGAGACCA
GCGGAGCCACAGGTTCTGTGAGAACAACATCTCGCTCCCCTGTTCTGTCCCGTCGAGAT
TCCCCACTGCAGGGCAGTGGGCAGCAGAATAGCCAGGCAGGACAGAGAACTCCACCAGT
ATTGAGCCCAGGCTTCTGTGGGAGAGAGTGGAGAAGCTGGTGCCAGACCTGGCAGTGGC
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CGCCTGGAAAATGCAGTGAAAAAACCTGAAGATAAAAAGGAAGTTTTTCAGACCCCTCAAG
CCTGCTGATCTGACCGCACTGGCCAAAGAGCTTCGAGCAGTGGGAAGATGTACGGCCACCT
CACAAAGTAACGGACTACTCCTCATCCAGTGAGGAGTCGGGGACGACGGATGAGGAGGAC
GACGATGTGGAGCAGGAAGGGGCTGACGAGTCCACCTCAGGACCAGAGGACACCAGAGCA
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CGGACTCAGTCCGCTAGTAGCACACTCCAGAAACACAAATCTTCCTCCTCCTTTACACCT
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GTGGGATTTTTCTGTGATGGGATGAGACCAGAAGCCATAAGGCAAGATCCTACCCGGAAA
GGCTCAGTGGTCAATGTGAATCCTACCAACACTAGGCCACAGAGTGACACCCCGGAGATT
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ATGGCCTTTAAGTCATTTGGAGAATTGGTACATAAGCCATTACTGGTGGATCTCACTGTT
GAGGAAGGCCAGAGGTTGAAAGTGATCTATGGATCCTGTGCTGGATTCCATGCTGTTGAT
GTGGATTACAGGATCAGTCTATGACATTTATCTACCAACACATATCCAGTGTAGCATCAA
CCCCATGCAATCATCATCCTCCCCAATACAGATGGAATGGAGCTTCTGGTGTGCTATGAA
GATGAGGGGGTTTATGTAAACACATATGGAAGGATCACCAAGGATGTAGTTCTACAGTGG

Fig. 9G
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Title: PAK5 SCREENING
METHODS
Inventor(s): Gregory PLOWMAN
et al.
Attorney Docket No.: 034536-0688

GGAGAGATGCCTACATCAGTAGCATATATTCGATCCAATCAGACAATGGGCTGGGGAGAG
AAGGCCATAGAGATCCGATCTGTGGAACTGGTCACTTGGATGGTGTGTTTCATGCACAAA
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CGGTCTGGTGGCAGCAGTCAGGTTTATTTTCATGACCTTAGGCAGGACTTCTCTTCTGAGC
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TTGGAATTCCTTGTAAC

SEQ ID NO: 10 ZC2 HUMAN

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AGTGCTCAGCTTGATCGAACAGTGGGCAGGAGGAATACTTTCATTGGAACCTCCTACTGG
ATGGCACCAGAAGTTATTGCCTGTGATGAAAACCCAGATGCCACATATGATTTCAAGAGT
GACTTGTGGTCTTTGGGTATCACCGCCATTGAAATGGCAGAAGGTGCTCCCCCTCTCTGT
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GAGCGACAGGTCCGCATTCAACTCAAGGACCATATTGATAGAACAAGAAGAAGCGAGGA
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CTGAGGCTGCAGCTGGCCAACAAGGAGCGTTCTGAGGCCCTACGGAGGCAGCAGCTGGAG
CAGCAGCAGCGGGAGAATGAGGAGCACAAGCGGCAGCTGCTGGCCGAGCGTCAGAAGCGC
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CTGCGGAAGCAGCAGGAGAGGGAGCAGCGCCGGCACTATGAGGAGCAGATGCGCCGGGAG
GAGGAGAGGAGGCGTGCGGAGCATGAACAGGAATATAAGCGCAAACAATTGGAAGAACAG
AGACAAGCAGAAAGACTGCAGAGGCAGCTAAAGCAAGAAAGAGACTACTTAGTTTTCCCTT
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GGAATGAGTCCTAGTGAGAAGCCAGCATGGGCCAAGGAGGTAGAAGAACGGTCAAGGCTC
AACCGGCAAAGTTCCCTGCCATGCCTCACAAGGTTGCCAACAGGATATCTGACCCCAAC
CTGCCCCCAAGGTCGGAGTCCTTCAGCATTAGTGGAGTTCAGCCTGCTCGAACACCCCCC
ATGCTCAGACCAGTCGATCCCCAGATCCCACATCTGGTAGCTGTAAAATCCCAGGGACCT
GCCTTGACCGCCTCCAGTCAGTGCACGAGCAGCCCAAAAGGGCCTCTCTGGGTTTCAG
GAGGCTCTGAACGTGACCTCCACCGCGTGGAGATGCCACGCCAGAACTCAGATCCCACC
TCGGAAAATCCTCCTCTCCCCACTCGCATTGAAAAGTTTGACCGAAGCTCTTGGTTACGA

Fig. 9H
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Title: PAK5 SCREENING
METHODS
Inventor(s): Gregory PLOWMAN
et al.
Attorney Docket No.: 034536-0688

CAGGAAGAAGACATTCCACCAAAGGTGCCTCAAAGAACAACCTTCTATATCCCCAGCATTAGCCAGAAAGAATTCTCCTGGGAATGGTAGTGCTCTGGGACCCAGACTAGGATCTCAACCCATCAGAGCAAGCAACCCTGATCTCCGGAGAACTGAGCCCATCTTGGAGAGCCCCCTTGCAGAGGACCAGCAGTGGCAGTTCCTCCAGCTCCAGCACCCCTAGCTCCCAGCCCAGCTCCCAAAGGAGCTCCCAGCCTGGATCACAAGCAGGATCCAGTGAACGCACCAGAGTTCGAGGCCAACAGTAAGTCAGAAGGATCACCTGTGCTCCCCCATGAGCCTGCCAAGGTGAAACCAGAAGAAATCCAGGGACATTACCCGGCCCCAGTCGACCAGCTAGCTACAAAAAAGCTATAGATGAGGATCTGACGGCATTAGCCAAAGAACTAAGAGAACTCCGGATTGAAGAAACAAACCGCCCAATGAAGAAGGTGACTGATTACTCCTCCTCCAGTGAGGAGTCAGAAAGTAGCGAGGAAGAGGAGGAAGATGGAGAGAGCGAGACCCATGATGGGACAGTGGCTGTGAGCGACATACCCAGACTGATACCAACAGGAGCTCCAGGCAGCAACGAGCAGTACAATGTGGGAATGGTGGGGACGCATGGGCTGGAGACCTCTCATGCGGACAGTTTTCAGCGGCAGTATTTCAAGAGAAGGAACCTTGATGATTAGAGAGACGTCTGGAGAGAAGAAGCGATCTGGCCACAGTGACAGCAATGGCTTTGCTGGCCACATCAACCTCCCTGACCTGGTGCAGCAGAGCCATTCTCCAGCTGGAACCCCGACTGAGGGACTGGGGCGCGTCTCAACCCATTCCCAGGAGATGGACTCTGGGACTGAATATGGCATGGGGAGCAGCACCAAAGCCTCCTTCACCCCTTTGTGGACCCCAGAGTATACCAGACGTCTCCCCTGATGAAGATGAAGAGGATGAGGAATCATCAGCCGCAGCTCTGTTTACTGGCGAACTTCTTAGGCAAGAACAGGCCAACTCAATGAAGCAAGAAAGATTTTCGGTGGTAATGTAAACCCCAACCAACATTTCGGCCTCATAGCGACACACCAGAAATCAGAAAATACAAGAAACGATTCAACTCAGAAATACTTTGTGCAGCTCTGTGGGGTGTAACCTTCTGGTGGGGACTGAAAATGGCCTGATGCTTTTGGACCGAAGTGGGCAAGGCAAAGTCTATAATCTGATCAACCGGAGGCGATTTTCAGCAGATGGATGTGCTAGAGGGACTGAATGTCCTTGTGACAATTTCAGGAAAGAAGAATAAGCTACGAGTTTACTATCTTTCATGGTTAAGAAACAGAATACTACATAATGACCCAGAAGTAGAAAAGAAACAAGGCTGGATCACTGTTGGGGACTTGGAAGGCTGTATACATTATAAAGTTGTTAAATATGAAAGGATCAAATTTTTGGTGATTGCCTTAAAGAATGCTGTGGAAATATATGCTTGGGCTCCTAAACCGTATCATAAATTCATGGCATTTAAGTCTTTTGCAGATCTCCAGCACAAAGCCTCTGCTAGTTGATCTCACGGTAGAAGAAGGTCAAAGATTAAAGGTTATTTTTGGTTCACACACTGGTTTCCATGTAATTGATGTTGATTCAGGAACCTCTTATGATATCTACACACCATCTCATATTCAGGGCAATATCACTCCTCATGCTATTGTCATCTTGCCTAAAACAGATGGAATGGAAATGCTTGTTTGCTATGAGGATGAGGGGGTGATGTAAACACCTATGGCCGGATAACTAAGGATGTGGTGCTCCAATGGGGAGAAATGCCACGTCTGTGGCCTACATTCATTCCAATCAGATAATGGGCTGGGGCGAGAAAGCTATTGAGATCCGGTCAGTGGAAACAGGACATTTGGATGGAGTATTTATGCATAAGCGAGCTCAAAGGTTAAAGTTTCTATGTGAAAGAAATGATAAGGTATTTTTTGCATCCGTGCGATCTGGAGGAAGTAGCCAAGTGTTTTTTCATGACCTCAACAGAAATTCATGATGAACTGGTAACAGAAGAGCACTTGGCACTTATCTTCATGGCGTTATTTCTAATTTAAAGAACATAACTCATGTGGACTTATGCCAGTCTAGAGGCAGAATCAGAAGGCTTGGTTGAACATATCGCTTTCCTTTTTCCTCTCCCTCCGCCCTCCAGTACAGTCCATCT

Fig. 9 I
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Title: PAK5 SCREENING
METHODS

Inventor(s): Gregory PLOWMAN
et al.

Attorney Docket No.: 034536-0688

SEQ ID NO: 11 ZC3 HUMAN

GCATTTGGGGAGGTGTATGAGGGTCGGCATGTCAAGACGGGGCAGCTGGCTGCCATCAAG
GTCATGGATGTCACGGAGGACGAGGAGGAAGAGATCAAACAGGAGATCAACATGCTGAAA
AAGTACTCTCACCACCGCAACATCGCCACCTACTACGGAGCCTTCATCAAGAAGAGCCCC
CCGGGAAACGATGACCAGCTCTGGCTGGTGATGGAGTTCTGTGGTGCTGGTTTCACTGACT
GACCTGGTAAAGAACACAAAAGGCAACGCCCTGAAGGAGGACTGTATCGCCTATATCTGC
AGGGAGATCCTCAGGGGTCTGGCCCATCTCCATGCCCACAAGGTGATCCATCGAGACATC
AAGGGGCAGAATGTGCTGCTGACAGAGAATGCTGAGGTCAAGCTAGTGGATTTTGGGGTG
AGTGCTCAGCTGGACCGCACCGTGGGCAGACGGAACACTTTCATTGGGACTCCCTACTGG
ATGGCTCCAGAGGTCATCGCCTGTGATGAGAACCCTGATGCCACCTATGATTACAGGAGT
GATATTTGGTCTCTAGGAATCACAGCCATCGAGATGGCAGAGGGAGCCCCCCTCTGTGT
GACATGCACCCCATGCGAGCCCTCTTCCTCATTCTCGGAACCCTCCGCCCAGGCTCAAG
TCCAAGAAGTGGTCTAAGAAGTTCATTGACTTCATTGACACATGTCTCATCAAGACTTAC
CTGAGCCGCCCACCCACGGAGCAGCTACTGAAGTTTCCCTTCATCCGGGACCAGCCCACG
GAGCGGCAGGTCCGCATCCAGCTTAAGGACCACATTGACCGATCCCGGAAGAAGCGGGGT
GAGAAAGAGGAGACAGAATATGAGTACAGCGGCAGCGAGGAGGAAGATGACAGCCATGGA
GAGGAAGGAGAGCCAAGCTCCATCATGAACGTGCCTGGAGAGTCGACTCTACGCCGGGAG
TTTCTCCGGCTCCAGCAGGAAAATAAGAGCAACTCAGAGGCTTTAAACAGCAGCAGCAG
CTGCAGCAGCAGCAGCAGCAGGAGACCCCGAGGCACACATCAAACACCTGCTGCACCAGCGG
CAGCGGCGCATAGAGGAGCAGAAGGAGGAGCGGCGCCGCGTGGAGGAGCAACAGCGGGCGG
GAGCGGGAGCAGCGGAAGCTGCAGGAGAAGGAGCAGCAGCGGCGGCTGGAGGACATGCAG
GCTCTGCGGCGGGAGGAGGAGCGGCGGCAGGCGGAGCGCGAGCAGGAATATATTTCGTAC
AGGCTAGAGGAGGAGCAGCGACAGCTCGAGATCCTTCAGCAACAGCTGCTCCAGGAACAG
GCCCTGCTGCTGGAATACAAGCGGAAGCAGCTGGAGGAGCAGCGGCAGTCAGAACGTCTC
CAGAGGCAGCTGCAGCAGGAGCATGCCTACCTCAAGTCCCTGCAGCAGCAGCAACAGCAG
CAGCAGCTTCAGAAACAACAGCAGCAGCAGCTCCTGCCTGGGGACAGGAAGCCCCTGTAC
CATTATGGTTCGGGGCATGAATCCCGCTGACAAACCAGCCTGGGGCCCGAGAGGTAGAAGAG
AGAACAAGGATGAACAAGCAGCAGAACTCTCCCTTGGCCAAGAGCAAGCCAGGCAGCAG
GGGCCTGAGCCCCCATCCCCAGGCCTCCCCAGGGCCCCCAGGACCCCTTTCCAGACT
CCTCCTATGCAGAGGCCGGTGGAGCCCCAGGAGGGACCGCACAAAGAGCCTGGTGGCACAC
CGGGTCCCACTGAAGCCATATGCAGCACCTGTACCCCGATCCCAGTCCCTGCAGGACCAG
CCCACCCGAAACCTGGCTGCCTTCCCAGCCTCCCATGACCCCGACCTGCCATCCCCGCA
CCCACTGCCACGCCCAGTGCCCGAGGAGCTGTCATCCGCCAGAATTCAGACCCACCTCT
GAAGGACCTGGCCCCAGCCCCGAATCCCCAGCCTGGGTCCGCCCAGATAACGAGGCCCA
CCCAAGGTGCCTCAGAGGACCTCATCTATCGCCACTGCCCTTAACACCAGTGGGGCCGGA
GGGTCCCGGCCAGCCCAGGCAGTCCGTGCCAGACCTCGCAGCAACTCCGCCTGGCAAATC
TATCTGCAAAGGCGGGCAGAGCGGGGCACCCCAAAGCCTCCAGGGCCCCCTGCTCAGCCC
CCTGGCCCGCCCAACGCCTCTAGTAACCCCGACCTCAGGAGGAGCGACCTGGCTGGGAA

Fig. 9J

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Title: PAK5 SCREENING
METHODS

Inventor(s): Gregory PLOWMAN
et al.

Attorney Docket No.: 034536-0688

CGCTCGGACAGCGTCCTTCCAGCCTCTCACGGGCACCTCCCCCAGGCTGGCTCACTGGAG
CGGAACCGCGTGGGAGTCTCCTCCAAACCGGACAGCTCCCCTGTGCTCTCCCCTGGGAAT
AAAGCCAAGCCCGACGACCACCGCTCACGGCCAGGCCGGCCCGCAGACTTTGTGTTGCTG
AAAGAGCGGACTCTGGACGAGGCCCTCGGCCTCCCAAGAAGGCCATGGACTACTCGTCG
TCCAGCGAGGAGGTGGAAAGCAGTGAGGACGACGAGGAGGAAGGCCGAAGGCCGGGCCAGCA
GAGGGGAGCAGAGATACCCCTGGGGGCGCGATGGGGATACAGACAGCGTCAGCACCATG
GTGGTCCACGACGTCGAGGAGATCACCGGGACCCAGCCCCCATACGGGGGCGGCACCATG
GTGGTCCAGCGCACCCCTGAAGAGGAGCGGAACCTGCTGCATGCTGACAGCAATGGGTAC
ACAAACCTGCCTGACGTGGTCCAGCCCAGCCACTCACCCACCGAGAACAGCAAAGGCCAA
AGCCCACCCTCGAAGGATGGGAGTGGTGACTACCAGTCTCGTGCGGCTGGTAAAGGCCCT
GGCAAGAGCTCGTTCACGATGTTTGTGGATCTAGGGATCTACCAGCCTGGAGGCAGTGGG
GACAGCATCCCCATCACAGCCCTAGTGGGTGGAGAGGGCACTCGGCTCGACCAGCTGCAG
TACGACGTGAGGAAGGGTTCTGTGGTCAACGTGAATCCCAACCAACACCCGGGCCACAGT
GAGACCCCTGAGATCCGGAAGTACAAGAAGCGATTCAACTCCGAGATCCTCTGTGCAGCC
CTTTGGGGGGTCAACCTGCTGGTGGGCACGGAGAACGGGCTGATGTTGCTGGACCGAAGT
GGGCAGGGCAAGGTGTATGGACTCATTGGGCGGCGACGCTTCCAGCAGATGGATGTGCTG
GAGGGGCTCAACCTGCTCATCACCATCTCAGGGAAAAGGAACAACTGCGGGTGTATTAC
TTGTCCTGGCTCCGGAACAAGATTCTGCACAATGACCCAGAAGTGGAGAAGAAGCAGGGC
TGGACCACCGTGGGGGACATGGAGGGCTGCGGGCACTACCGTGTTGTGAAATACGAGCGG
ATTAAGTTCCTGGTCATCGCCCTCAAGAGCTCCGTGGAGGTGTATGCCTGGGCCCCCAA
CCCTACCACAAATTCATGGCCTTCAAGTCCTTTGCCGACCTCCCCCACC GCCCTCTGCTG
GTCGACCTGACAGTAGAGGAGGGGCAGCGGCTCAAGGTCATCTATGGCTCCAGTGCTGGC
TTCCATGCTGTGGATGTCGACTCGGGGAACAGCTATGACATCTACATCCCTGTGCACATC
CAGAGCCAGATCACGCCCCATGCCATCATCTTCCTCCCCAACACCGACGGCATGGAGATG
CTGCTGTGCTACGAGGACGAGGGTGTCTACGTCAACACGTACGGGCGCATCATTAAGGAT
GTGGTGCTGCAGTGGGGGGAGATGCCTACTTCTGTGGCCTACATCTGCTCCAACCAGATA
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GTCTTCATGCACAAACGAGCTCAGAGGCTCAAGTTCCTGTGTGAGCGGAATGACAAGGTG
TTTTTTGCCTCAGTCCGCTCTGGGGGCAGCAGCCAAGTTTACTTTCATGACTCTGAACCGT
AACCGCATCATGAACTGGTGACGGGGCCCTGGGCTGGGGCTGTCCCACTGGACCCAGC
TCTCCCCCTGCAGCCAGGCTTCCCGGGCCGCCCTCTTTCCCTCCCTGGGCTTTTGCTT
TACTGGTTTGATTTCACTGGAGCCTGCTGGGAACGTGACCTCTGACCCCTGA

SEQ ID NO: 12 ZC4 HUMAN

CAATGTAAACCCACTCTATGTCTCTCCTGCATGTAAAAACCACTAATCCACATGTATGA
AAAGGAGTTCACCTTCTGAGATCTGCTGTGGTTCTTTGTGGGGAGTCAATTTGCTGTTGGG
AACCCGATCTAATCTATATCTGATGGACAGAAGTGGAAAGGCTGACATTACTAACTTAT
AAGGCGAAGACCATTCCGCCAGATTCAAGTCTTAGAGCCACTCAATTTGCTGATTACCAT

Fig. 9K
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Title: PAK5 SCREENING
METHODS
Inventor(s): Gregory PLOWMAN
et al.
Attorney Docket No.: 034536-0688

CTCAGGTCATAAGAACAGACTTCGGGTGTATCATCTGACCTGGTTGAGGAACAAGATTTT
GAATAATGATCCAGAAAGTAAAAGAAGGCAAGAAGAAATGCTGAAGACAGAGGAAGCCTG
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AACATATATTGCAATTGCTTTGAAATCATCAATTCACCTTTATGCATGGGCACCAAAGTC
CTTTGATGAAAGCACTGCTATTTAAAGTATTTCCAACACTTGATCATAAGCCAGTGACAGT
TGACCTGGCTATTGGTTCTGAAAAAAGACTAAAGATTTTCTTCAGCTCAGCAGATGGATA
TCACCTCATCGATGCAGAATCTGAGGTTATGTCTGATGTGACCCTGCCAAAGAATCCCCT
GGAAATCATTATACCACAGAATATCATCATTTTACCTGATTGCTTGGGAATTGGCATGAT
GCTCACCTTCAATGCTGAAGCCCTCTCTGTGGAAGCAAATGAACAACTCTTCAAGAAGAT
CCTTGAAATGTGGAAAGACATAACCATCTTCTATAGCTTTTGAATGTACACAGCGAACCAC
AGGATGGGGCCAAAAGGCCATTGAAGTGCGCTCTTTGCAATCCAGGGTTCTGGAAAGTGA
GCTGAAGCGCAGGTCAATTAAGAAGCTGAGATTCTGTGCACCCGGGGTGACAAGCTGTT
CTTTACCTCTACCCTGCGCAATCACCCAGCCGGGTTTACTTCATGACACTTGGAAAAC
TGAAGAGCTCCAAAGCAATTATGATGTCTAAAAGTTTCCAGTGATTTATTACCACATTAT
AAACATCATGTATAGGCAGTCTGCATCTTCAGATTTTCAGAGATTAAATGAGTATTCAGTT
TTATTTTTTAGTAAAGATTAAATCCAAAACCTTACTTTTAATGTAGCACAGAATAGTTTTA
ATGAGAAATGCAGCTTTATGTATAAAATTAAGTATAGCAAGCTCTAGGTACTCCAATGGT
GTACAATGTCTTTTGCACAACTTTGTAAGTTTGTACTGTGAATTCAAACATTACTCT
TTGGACAGTTTGGACAGTATCTGTATTTCAGATTTTACAACATGGAGTAAAGAAACCTGTT
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AGAAAAACATCGGCCAACT

SEQ ID NO: 17 KHS2 HUMAN

CCGCCATGAACCCCGGCTTCGATTTGTCCCGCCGGAACCCGCAGGAGGACTTCGAGCTGA
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GCTATCTCAGGCGAGATAAGCTTTGGATTTGCATGGAGTTTTGTGGAGGTGGTTCTTTAC
AGGATATTTATCACGTAAGTGGACCTCTGTCAGAACTGCAAATTGCATATGTTAGCAGAG
AAACACTGCAGGGATTATATTATCTTCACAGTAAAGGAAAAATGCACAGAGATATAAAGG
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CACAGATAACAGCTACAATTGCCAAACGGAAGTCTTTCATTGGCACACCATATTGGATGG
CTCCAGAAGTTGCAGCTGTTGAGAGGAAGGGGGTTACAATCAACTCTGTGATCTCTGGG
CAGTGGGAATCACTGCCATAGAACTTGCAGAGCTTCAGCCTCCTATGTTTGAATTACACC
CAATGAGAGCATTATTTCTAATGACAAAAAGCAATTTTCAGCCTCTAAACTAAAGGATA
AAATGAAATGGTCAAATAGTTTTTCATCACTTTGTGAAAATGGCACTTACCAAAAATCCGA
AAAAAGACCTACTGCTGAAAAATTATTACAGCATCCTTTTGTAAACACAACATTTGACAC
GGTCTTTGGCAATCGAGCTGTTGGATAAAGTAAATAATCCAGATCATTCCACTTACCATG

Fig. 9L
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Title: PAK5 SCREENING
METHODS
Inventor(s): Gregory PLOWMAN
et al.
Attorney Docket No.: 034536-0688

ATTTTCGATGATGATGATCCTGAGCCTCTTGTTGCTGTACCACATAGAATTCACTCAACAA
GTAGAAACGTGAGAGAAGAAAAACACGCTCAGAGATAACCTTTGGCCAAGTGAAATTTG
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TCAAGAGATGTCCCATGTCAGGGAGCCCAGCAAAGCCATCCCAAGTTCCACCTAGACCAC
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CATGTCCACTTAGAATGTTTGAAATGCTGGTAGTTCCTGAACAGGAGTACCCTTTAGTTT
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GCTTTGACAGTTAACTCTAGAAAGAAAGAACACTACCACTGCAACATTAATGGATGCTTG
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GATAAGATGGGGAAAATTTTGTTTTAAAGTGGTATGGATATATTTAGCATATTGAACCACA
CAAGTGCTTAATTCATTGTTATGTAATCTTTGTACATATAGGCAGTATTTTTTCTGTGAA
ACTTCATATTGCTGAAGACATACACTAAGAATTTATGTAGATAATGTACTTTTATGAGAT
GTACAAGTAAGTGTCTTATCTGTACAGATGTAAATGTTGATGAAAATGCAATTGGGGTTA
ATATTTTAAGAATCTTTAGTATATTCTTGGGTGTGGCTATATTACAAAATGGGATGCTG
GCAATGAAACAATACATTTAACACTATTGTATTTTTATTATATGTAATTTAGTAATATGA

Fig. 9M
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Title: PAK5 SCREENING
METHODS
Inventor(s): Gregory PLOWMAN
et al.
Attorney Docket No.: 034536-0688

ATATAAATCTTGTAACCTTTTAAAATTGTAATGGAGGCTGTAATCATTTTATAATCTTTTT
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TTTATATTTAAGCAGAATCCTGTAAGATTGCTTGTCTTTGCTTAAAAACAATACCTTTGA
ACATTTTTGAATCACAGAATAGCGGTACCATGATAGAATACTGCAATTGTGGTCAGAATT
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ATACATGGCCAAAATAATTTAGTTACTACCTCATACAAACAATATAATGGTTACTACACA
TCACAGGAACTTAGTTTTGGTTTAAGTCATTTTTGATTGCTTTTTTCCAATGGAATATGT
ATATACCAGGTTTTAGCAAAATGCACACTTTTGGCTCTTTTTTGGTATATGTTCTTTTATAT
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TTT

SEQ ID NO: 19 SULU1 HUMAN

GGGAGGGTCCTTGTGGCGCCGGGCGGGGTCCTGCGTGGAGAGTGGGACGCAACGCCG
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GCGGCGGCGCCGGGCCCCGGGGGTGGTGACAGCAGGTCTGAGGTTGCATCATAAATACAAA
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AATACTATTGAGTACAAAGGCTGTTACTTGAAAGAACACACTGCTTGGTTGGTGATGGAA
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AACATGAATGCAATGAGTGCCTTATATCACATTGCCCAGAATGACTCCCCAACGTTACAG
TCTAATGAATGGACAGACTCCTTTAGGAGATTTGTTGATTACTGCTTGCAGAAAATACCT
CAGGAAAGGCCAACATCAGCAGAACTATTAAGGCATGACTTTGTTTCGACGAGACCGGCCA

Fig. 9N
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Title: PAK5 SCREENING
METHODS
Inventor(s): Gregory PLOWMAN
et al.
Attorney Docket No.: 034536-0688

CTACGTGTCCTCATTGACCTCATACAGAGGACAAAAGATGCAGTTCGTGAGCTAGATAAC
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GATGACGAAAGCACAATCAATTCCAGCTCCTCCGTCTGTGCATAAGAAAGATCATGTATTC
ACAAGGGATGAGGCGGGCCACGGCGATCCCAGGCCTGAGCCGCGGCCTACCCAGTCAGTT
CAGAGCCAGGCCCTCCACTACCGGAACAGAGAGCGCTTTGCCACGATCAAATCAGCATCT
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GGTTATAAGCGGATGCGGCGCCAGCACCCAGAAGCAGCTGATCGCCCTGGAGAACAAAGCTG
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CAACAGAGACTGTACTACGACAAAAATTGTCGTTTCTTCAAGCGGAAAATAATGATCAAG
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CAGCTGCACACGTTACAGAAGCTACGCATGGATCTGATCCGTTTACAGCACCAGACGGAA
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CAACATGAACGTGAGCTCCAGAAGCTAGAGCAGAGAGTGTCTCTGCGCAGAGCACACCTT
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GGATTTGGGAATTTGGTTACATTAGATTTTCTTAAGGAGGACTACAGATGAGATTAAATT
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ACATCGTGTCGGACTAGTGCTGTTTATTCTTACTCCATCAGGGGCCCCCTTCCCTCCCC
CGTGTCAACTTTTCAAGTGTGGCCAAAACCTGGCCGTCTCTTCTATTACAGTACACGTCA
CAGTATTGATGTGATTCAAAATGTTTCAGTGAAAACCTTTGGAGACAGTTTAAACAAAACC
AATAAACCAACAACAAAAAAGTGGATGTATATTGCTTTAAGCAATCACTCATTACCACC
AATCTGTGAAAGTAAAGCAAAAAATAATAATAATAATGCCAAGGGGGAGAGAGACACAA

Fig. 9 O
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Title: PAK5 SCREENING
METHODS
Inventor(s): Gregory PLOWMAN
et al.
Attorney Docket No.: 034536-0688

TATCCGCAGCCTTACACCTTAACTAGCTGCTGCATTATTTTATTTTATTTTATTTTTTTG
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GAATACACTTAAGGAGCTCACAGAATCCCAGTAGCACAAATTGGGCTTTGGCAAATCGTG
TATTTTGTGTATAGAAGGAATTTAAGGAGAGGTATTACTTATTTTCATATTGTATTTTAA
CTGTTTCTCTGATCAAATTTTTTTTACTTCCTCCTCCTGTTCCCTCCCCACCTCCCTCCTTT
TCCAGTTCAGTATTTGGAGTTCAACACTGTCTCTCAATCAGATCATCTTGATCTTTTTCT
TTATCTCCCTTCCCTTCCCTAAGTCCCATTTCTTGGTCATAAATATTGCATTATTCACAC
TTTCAAACGTGTGATTTTTCTTACAATAAAAAATGATGAAAAAAAAAAAAAAAAAAAAA

SEQ ID NO: 20 SULU3 HUMAN

TATTGAATTGGCGGAACGGAAGCCTCCTTTATTTAATATGAATGCAATGAGTGCCTTATA
TCACATAGCCCAAATGAATCCCTACACTACAGTCTAATGAATGGTCTGATTATTTTCG
CAACTTTGTAGATTCTTGCTCCAGAAAATCCCTCAAGATCGACCTACATCAGAGGAACT
TTTAAAGCACATATTTGTTCTTCGGGAGCGCCCTGAAACCGTGTTAATAGATCTCATTCA
GAGGACAAAGGATGCAGTAAGAGAGCTGGACAATCTGCAGTATCGAAAGATGAAGAACT
CCTTTTCCAGGAGGCACATAATGGACCAGCAGTAGAAGCACAGGAAGAAGAAGAGGAACA
AGATCATGGTGTGTTGGCCGGACAGGAACAGTTAATAGTGTTGGAAGTAATCAATCCATTCC
CAGCATGTCCATCAGTGCCAGCAGCCAAAGCAGTAGTGTTAACAGTCTTCCAGATGTCTC
AGATGACAAGAGTGAGCTAGACATGATGGAGGGAGACCACACAGTGATGTCTAACAGTTC
TGTTATCCATTTAAAACCAGAGGAAGAAAATTACAGAGAAGAGGGAGATCCTAGAACAAG
AGCATCAGATCCACAATCTCCACCCCAAGTATCTCGTCACAAATCACACTATCGTAATCG
AGAACACTTTGCTACTATACGGACAGCATCACTGGTTACGAGGCAAATGCAAGAACATGA
GCAGGACTCTGAGCTTAGAGAACAAATGTCTGGCTATAAGCGAATGAGGCGACAACATCA
AAAGCAACTGATGACTCTGGAAAACAAGCTAAAGGCTGAGATGGATGAACATCGCCTCAG
ATTAGACAAAGATCTTGAAACTCAGCGTAACAATTTTGCTGCAGAAATGGAGAACTTAT
CAAGAAACACCAGGCTGCCATGGAGAAAGAGGCTAAAGTGATGTCCAATGAAGAGAAAAA
ATTTAGCAACATATTCAGGCCCAACAGAAGAAAGAACTGAATAGTTTTCTCGAGTCCCA
GAAAAGAGAGTATAAACTTCGAAAAGAGCAGCTTAAAGAGGAGCTAAATGAAAACCAGAG
TACCCCCAAAAAAGAAAAACAGGAGTGGCTTTCAAAGCAGAAGGAGAATATACAGCATTT
CCAAGCAGAAGAAGAAGCTAACCTTCTTCGACGTCAAAGACAATACCTAGAGCTGGAATG
CCGTCGCTTCAAGAGAAGAATGTTACTTGGGCGTCATACTTAGAGCAGGACCTTGTCAG
GGAGGAGTTAAACAAAAGACAGACTCAGAAGGACTTAGAGCATGCCATGCTACTCCGACA
GCATGAATCTATGCAAGAAGTGGAGTTCGCCACCTCAACACAATTCAGAAGATGCGCTG
TGAGTTGATCAGATTACAGCATCAAACCTGAGCTCACTAACCAGCTGGAATATAATAAGCG
AAGAGAACGAGAATAAGACGAAAGCATGTCATGGAAGTTCGACAACAGCCTAAGAGTTT

Fig. 9P
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Title: PAK5 SCREENING
METHODS

Inventor(s): Gregory PLOWMAN
et al.

Attorney Docket No.: 034536-0688

GAAGTCTAAAGAACTCCAAATAAAAAAGCAGTTTCAGGATACCTGCAAAATCCAAACCAG
 ACAGTACAAAGCATTAAAGAAATCACCTGCTGGAGACTACACCAAAGAGTGAGCACAAAGC
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 AGCAGAGTGCCAGGTTTTGAAGATGCAGCTGCAGCAGGAACTGGAGCTGTTGAATGCGTA
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 ACAGAGGGTCTCCCTCCGGAGGGCACTCTTAGAACAAAAGATTGAAGAAGAGATGTTGGC
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 TGAAGCTTTTGACTCTGAAAGCATGAGACTAGGTTTTAGTAATATGGTCCTTTCTAATCT
 CTCCCCTGAGGCATTACAGCCACAGCTACCCGGGAGCTTCTGGTTGGTCACACAACCCTAC
 TGGGGGTCCAGGACCTCACTGGGGTTCATCCCATGGGTGGCCACCACAAGCTTGGGGCCA
 TCCAATGCAAGGTGGACCCCAAGCCATGGGGTCACCCTTCAGGGCCAATGCAAGGGGTACC
 TCGAGGTAGCAGTATGGGAGTCCGCAATAGCCCCCAGGCTCTGAGGCGGACAGCTTCTGG
 GGGACGGACGGAGCAGGGCATGAGCAGAAGCACGAGTGTCACCTTACAAATATCCAATGG
 GTCACACATGTCTTATACATAACTTAATAATTGAGAGTGGCAATTCCGCTGGAGCTGTCT
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 TACTAATTGGGATGTCATAGTACTTGGCTGCCGGGTTTGTGTGTTTTTGGGGAAATTTTG
 AAAAGTGGAGTTGATATTAATAATAATGTGTATGTGTGTACATATATATACACACACAT
 ACACATATATTATGCATGTGGTGAAAAGAATTGGCTAGATAGGGGATTTTTCTGAACACT
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 GTGTATTTATTTGTTATTAATTGATCTGACTTCTCAGCCTCATTTGGACTAAAAAAGA
 AAGCAGAAATCCATGAACACATTGCTTCTCGGCCTTTTGGCTAAGATCAAGTGTAGAAAT
 CCATGAACACTAAAGGACTTCATTGATTTTTTCAGAGAGTAGAAAACAACCTTAGTTTTTC
 TTTTTTCTGAATGCGTCATAGGCTTGTGAGTGATTTTTGTCCATTCAATTGTGCCTTCT
 TTGTATTATGATAAGATGGGGGTACTTAAGGAGATCACAAAGTTGTGTGAGGATTGCATTA
 ACAAACCTATGAGCCTTCAATGGGGAAGACCAGAAGGGTGAGAGGGGCCCTGAAAGTTCA
 TATGGTGGGTATGTCCCGCAGCAGAGTGAGGAGATGAAGCTTACGTGTCCTGACGTTTTG
 TTGCTTATACTGTGATATCTCATCCTAGCTAAGCTCTATAATGCCCAAGACCCCAAACAG
 TACTTTTACTTTGTTTGTACAAAAACAAAGACATATAGCCAATACAAATCAAATGCCGGA
 GGTGTTTGATGCCATATTTGCAAATTGCCATCTATTGAAATTCTCGTCACACTACATAGA
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 ATTTAAATGTTTAGTTGCCACAGTGAACCAGGAGTCACTGAGCCAATGACTTTACCAGCT
 GCTGACTAATCTTCATCACCCTGTAGATTTTGTGCTGCATGTGCAGGTCCTCTATTTTTAA
 TTGCTGTTTTCGTTGCTGCAGTACTTTACAACTTCTAGTTCTGTTGAGACTTAGTGACCA
 TTTGGCATCAAGTTAACATCACACAATAGGAAACACCACTTCCACAAGTCTCAAGCCTCA

Fig. 9Q
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Title: PAK5 SCREENING
 METHODS
 Inventor(s): Gregory PLOWMAN
 et al.
 Attorney Docket No.: 034536-0688

GTGCTAAAGTACTACTGAAAAGGAACTAGGAAGTTTGGCCAATT

SEQ ID NO: 21 SULU3 MURINE

GCAGGATGCCATCAACTAACAGAGCAGGCAGTCTAAAGGACCCTGAAATTGCAGAGCTCT
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TGTCTTATAGTGGAAAGCAGTCTACTGAGAAATGGCAGGATATTATTAAGGAAGTCAAGT
TTCTACAAAGAATAAAACATCCCAACAGTATAGAATACAAAGGCTGCTATTTACGTGAAC
ACACAGCATGGCTTGTAATGGAATATTGTTTAGGATCTGCTTCAGATTTATTAGAAGTTC
ATAAAAAGCCATTACAAGAAGTGGAATAGCAGCAATTACACATGGTGCTCTCCAGGGAC
TAGCTTATTTACATTCTCATACCATGATCCATAGAGATATCAAAGCAGGAAATATCCTTC
TGACAGAACCCAGGCCAAGTGAAACTTGCTGACTTTGGATCTGCTTCCATGGCTTCCCCTG
CCAATTCTTTTGTGGGAACACCATATTGGATGGCCCCAGAAGTAATTTTAGCCATGGATG
AAGGACAGTATGATGGCAAAGTTGATGTATGGTCTCTTGGAATAACGTGTATTGAATTAG
CCGAGAGGAAGCCTCCTTTATTTAATATGAATGCAATGAGTGCCTTATATCACATAGCCC
AAAATGAATCCCCTACACTACAATCTAATATGAATGATTCTTGCCTCCAGAAAATCCCTC
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TGCAGTATCGAAAGATGAAGAACTCCTTTTCCAGGAGGCACATAATGGGCCAGCGGTAG
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GTGTTAATAGTCTTCCAGATGCATCAGATGACAAGAGTGAGCTAGACATGATGGAGGGAG
ACCATACAGTGATGTCTAACAGTTCTGTCATCCACTTAAAACCTGAGGAGGAAAATTACC
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ATAACTTGGAACAGGACCTTGTCAGGGAGGAGTTAAACAAAAGGCAGACTCAAAGGACT
TGGAACATGCAATGCTATTGCGACAGCATGAATCAATGCAAGAAGTGGAGTTTCGCCATC
TCAACACTATTGAGAAGATGCGCTGTGAGTTGATCAGACTGCAGCATCAAAGTGAAGCTCA
CTAACCAGCTAGAGTACAATAAGAGAAGGGAACGGGAAGTGGAGGCGAAAACATGTCATGG

Fig. 9R
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Title: PAK5 SCREENING
METHODS
Inventor(s): Gregory PLOWMAN
et al.
Attorney Docket No.: 034536-0688

AAGTTCGACAACAACCTAAGAGTCTGAAGTCTAAAGAACTCCAAATAAAAAAGCAGTTTC
AGGATACCTGCAAAATTCAAACCAGACAGTACAAAGCATTAAAGGAATCACCTACTGGAGA
CTACACCAAAGAATGAGCACAAAGCAATC

SEQ ID NO: 25 GEK2 HUMAN

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GCTGGGCGACGGCGCCTTCGGCAAGGTTTACAAGGCCAAGAATAAGGAGACGGGTGCTTT
GGCTGCGGCCAAAGTCATTGAAACCAAGAGTGAGGAGGAGCTGGAGGACTACATCGTGGA
GATTGAGATCCTGGCCACCTGCGACCACCCCTACATTGTGAAGCTCCTGGGAGCCTACTA
TCACGACGGGAAGCTGTGGATCATGATTGAGTTCTGTCCAGGGGGAGCCGTGGACGCCAT
CATGCTGGAGCTGGACAGAGGCCTCACGGAGCCCCAGATACAGGTGGTTTGCCGCCAGAT
GCTAGAAGCCCTCAACTTCCTGCACAGCAAGAGGATCATCCACCGAGATCTGAAAGCTGG
CAACGTGCTGATGACCCTCGAGGGAGACATCAGGCTGGCTGACTTTGGTGTGTCTGCCAA
GAATCTGAAGACTCTACAGAAACGAGATTCTTCATCGGCACGCCTTACTGGATGGCCCC
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GTCCCTGGGCATCACGCTGATTGAGATGGCCCAGATCGAGCCGCCACACCACGAGCTCAA
CCCCATGCGGGTCTGCTAAAGATCGCCAAGTCGGACCCTCCACGCTGCTCACGCCCTC
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CCGGGATGAGGGGGAAGAGGAGGACGCCGTGGATGCCGCCTCCACCCTGGAGAACCATA
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ACCTTCCACCCCGCTGGCACCCAGCCAGTCTCAGGACAGTGTGAATGAGCCCTGCAGCCA
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AATTCAGGTAGCCCAGGAGAAGCAAGTTGCTGAGCAGGGTGGGGACCTCAGCCCAGCAGC
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CAGGCGCCAGGAACTCCGAGAGCTTCGGCTGCTCCAGAAAGAAGAGCATCGGAACCAGAC
CCAGCTGAGTAACAAGCATGAGCTGCAGCTGGAGCAAATGCATAAACGTTTTGAACAGGA
AATCAACGCCAAGAAGAAGTTCTTTGACACGGAATTAGAGAACCTGGAGCGTCAGCAAAA
GCAGCAAGTGGAGAAGATGGAGCAAGACCATGCCGTGCGCCGCCGGGAGGAGGCCAGGCG

Fig. 9S
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Title: PAK5 SCREENING
METHODS
Inventor(s): Gregory PLOWMAN
et al.
Attorney Docket No.: 034536-0688

GATCCGCCTGGAGCAGGATCGGGACTACACCAGGTTCCAAGAGCAGCTCAAACCTGATGAA
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CTGTGACAAGGAGCGCGAGTGECTCATGAAGAAGCAGGAGCTCCTTCGAGACCGGGGAAGC
AGCCCTGTGGGAGATGGAAGAGCACCAGCTGCAGGAGAGGCAACCAGCTGGTGAAGCAGCA
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GGAAAAGGCGCGGCTGCCCAAGATCCAGAGGAGTGAGGGCAAGACGCGCATGGCCATGTA
CAAGAAGAGCCTCCACATCAACGGCGGGGGCAGCGCAGCTGAGCAGCGTGAGAAGATCAA
GCAGTTCTCCCAGCAGGAGGAGAAGAGGGCAGAAGTCGGAGCGGCTGCAGCAACAGCAGAA
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SEQ ID NO: 27 PAK4 HUMAN

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TGTGGGCCTCCCCCACAATGGCAGAACATCCTGGACACACTGCGGCGCCCCAAGCCCGT
GGTGGACCCTTCGCGAATCACACGGGTGCAGCTCCAGCCCATGAAGACAGTGGTGCGGGG
CAGCGCGATGCCTGTGGATGGCTACATCTCGGGGCTGCTCAACGACATCCAGAAGTTGTC
AGTCATCAGCTCCAACACCCTGCGTGCGCCGAGCCCCACCAGCCGGCGGGCGGGCAGAGTC
CCTGGGGCTGCTGGGGGATGAGCACTGGGCCACCGACCCAGACATGTACCTCCAGAGCCC
CCAGTCTGAGCGCACTGACCCCCACGGCCTCTACCTCAGCTGCAACGGGGGCACACCAGC
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GGCTGCAAAGGCACAGTCCCTGGGCCCCGCGAGTTTCAGGGTGCTCGCAGCGCTGTCT
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GGTGGGCTCAGCCACAGGCAGGCCAGGTGGGGAAGGCAGCCCTAGCCCTAAGACCCGGGA
GAGCAGCCTGAAGCGCAGGCTATTCCGAAGCATGTTCTGTCCACTGCTGCCACAGCCCC
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GCCGGTGGGGACCTTCAGCCCTCTGACCACTTCGGATACCAGCAGCCCCCAGAAGTCCCT
CCGCACAGCCCCGGCCACAGGCCAGCTTCCAGGCCGGTCTTCCCCAGCGGGATCCCCCG
CACCTGGCACGCCCAGATCAGCACCAAGCAACCTGTACCTGCCCCAGGACCCACGGTTGC
CAAGGGTGCCCTGGCTGGTGAAGGACACAGGTGTTGTGACACATGAGCAGTTCAAGGCTGC

Fig. 9T
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Title: PAK5 SCREENING
METHODS
Inventor(s): Gregory PLOWMAN
et al.
Attorney Docket No.: 034536-0688

GCTCAGGATGGTGGTGGACCAGGGTGACCCCCGGCTGCTGCTGGACAGCTACGTGAAGAT
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CCTGCCCCACTTCAGGGCTGCTGTGAGATGGAATTCAGGAAAGAACTTCAGGTGTCTGG
ACCCTTTCTATCTAGATAATATTTTTTAGATTCTTCTGCTCCCTAGTGACCTACCTGGGGG
CAAAGAAATTGCAAGGACTTTTTTTTTAAGGGTCAGAGTTTTTCAAAACAAAAGCATCTTCC
CTAGAAATTTTTGTGAATTGTTTGCACCTTGTGCCTGTTTTAAATTAAATTGAGTGTTCAA

Fig. 9U
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Title: PAK5 SCREENING
METHODS

Inventor(s): Gregory PLOWMAN
et al.

Attorney Docket No.: 034536-0688

AGCC

SEQ ID NO: 28 PAK5 HUMAN

GGCCAGTGGGGCGAACTGGCAGCTGGCCGGCCCTTTAACACCTACCCGAGGGCTGACAC
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GCGGGAGCCACAGCGAGTATCCCATGAGCAGTTCGGGGCTGCCCTGCAGCTGGTGGTGA
CCCAGGGCAGCCCCGCTCCTACCTGGACAACTTCATCAAGATTGGCGAGGGCTCCACGGG
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AGTAGGGGGCCAGGCCTCCCCTCCTCCAGCCCCGGGAGATGCTCCGCGTGGCACCCACC
TCCTTGCTGGGGGTAGATGAGACCCTACTACTGAACTCCAGTTTTGATCTCGTGACTTTT
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GCCCCGAAGGGGTGTCTGGCGCCTTGCTGACACCCAGCCCCCTCTCCCCCTGAGCCATT
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GACTACTGCACCTGGACAGCCTCCTCTTTTCTAGAAGTCTATTTATATTGTCATTTTATA
A ACTCTAGCCCCCTGCCCTTATTGGGGGACAGATGGTCCCTGTCTTGCGGGGTGGCCCTG
GCAGAACCCTGCCTGAAGAACCAGGTTCTGCCCCGGTCAGCGCAGCCCCAGCCCCGCCCA
CCCCTGCCTCGAGTTAGTTTTACAATTAACATTGTCTTGTTTTGTGAAAAAAAAAAAAA
AAAAAAAAAA

Fig. 9V
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Title: PAK5 SCREENING
METHODS
Inventor(s): Gregory PLOWMAN
et al.
Attorney Docket No.: 034536-0688

Title: PAK5 SCREENING

METHODS

Inventor(s): Gregory PLOWMAN
et al.

Attorney Docket No.: 034536-0688

>STLK5_h

MSSFLPEGGCYELLTVIGKGFEDLMTVNLARYKPTIGEYVTVRRINLEACSNEMVTFLLQGELHVSKLFNHPNIVPYRATFI
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>STLK6_h

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IRNILFGAVRGLNYLHQNGCIHRSIKASHILISGDGLVTL SGLSHLSLVKHGQRHRAVYDFPQFSTSVQPWLSPELLRQ
DLHGYNVKS DIYSVGITACELASGVQVPFQDMHRTQMLLQKLKGPYPSPLDISIFPQSESRMKNSQSGVDSGIGESVLVSS
GHTVNSDRLHTPSSKTFSPAFFSLVQLCLQQDPEKRPSASSLLSHVFFKQMKESQDSILSLPPAYNKPSISLPPVLP
WTEPECDFPDEKDSYWEF

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NRDDYELQEVIGSGATAVVQAA YCAPKKEKVAIKRINLEKQCQTSMDELLKEIQAMSQCHHPNIVSYTTSFVVKDELWLVM
KLLSGGSVLDIIKHIVAKGEHKS

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MAGPGGWRDREVDLGHLPDPTGIFSLDKTIGLGTYGRIYGLHEKTGAFTAVKVMNARKDEEEDLRTELNLLRKYSFHK
NIVSFYGAFKLSPPGQRHQLWMVMELCAAGSVTDVVGMTSNQSLKEDWIA YICREILQGLAHLHAHRV IHRDIKQGNVL
LTHNAEVKLVD FGVSAQVSRTNGRRNSFIGTPYWMapeVIDCEDPRRSYDYRSDVWSVGITAIEMAEGAPPLCNLQPLE
ALFVILRESAPT VKSSGWSRK FHNFM EKCTIKNFLFRPTSANMLQHPFVRDIKNERHVVESLTRHLTGIKKRQKKEQAR
EKSKSVSTLRQALAKRLSPKRFRAKSSWRPEKLELSDLEARRQRQRWEDIFNQHEEELRQVDKDESSDNDEVFHS

Fig. 10A

IQAEVQIEPLKPYISNPKKIEVQERSVPNNQDHAHHVKFSSVPPQRSLLEQAQKPIDIRQRSSQNRQNWLAASGDSKH
KILAGKTQSYCLTIYISEVKKEEFQEGMNQKCGAQVGLGPEGHCIWQLGESSSEESPVTGRRSQSSPPYSTIDQKLLV
DIHVPDGFVKVGIISPPVYLTNEWVGYNALSEIFRNDWLTAPVIOQPEEDGDYVELYDASADTDGDDDESNDTFEDTYD
HANGNDDLQNDVQANDVCKDHDNNKFVDDVNNNYYEAPSCPRASYGRDGSCKQDGYDGSRGKEEAYRGYGSHTANRS
HGGSAASEDNAIGDQEEHAANIGSERRGSEGDGKGVVRTSEESGALGLNGEENCSETDGPGLKRPAHQDFEYLQEEPG
GGNEASNAIDSGAAPSAPDHESDNKDISESTQSDFSANHSSPSKSGMSADANFASAILYAGFVEVEEESPKQPSEVNV
NPLYVSPACKKPLIHMYEKEFTSEICCGSLWGVNLLGTRSNLYLMDRSGKADITKLIRRRPFRQIQVLEPLNLLITISG
HKNRLRVYHLTWLRNKILNNDPESKRQEEMLKTEEACKAIDKLTGCEHFSVLQHEETTYIAIALKSSIHLYAWAPK'SFD
ESTAIVFPTLDHKPVTVDLAIGSEKRLKIFFSSADGYHLIDAESEVMSDVTLPKNPLEIIIPQNIILPDCLGIGMMLT
FNAEALSVEANEQLFKKILEMWKDIPISSIAFECTQRTTGWGQKAEVRSLSQSRVLESELKRRSIKKLRLCLTRGDKLFFT
STLRNHHSRVYFMTLGKLEELQSNYDV

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MFGKRKRVEISAPSNFEHRVHTGFDQHEQKFTGLPRQWQSLIEESARRPKPLVDPACITSIQPGAPKTIVRGSKGAKDG
ALTLLDEFENMSVTRNSLRDSDPPPARARQENGMPEEPATTARGPGKAGSRGRFAGHSEAGGSGDRRRAGPEKRP
KSSREGSGGPQESSRDKRPLSGPDVGTQPAAGLASGAKLAAGRPFNTYPRADTDHPSRGAQGEPHDVPANGPSAGGLAIP
QSSSSSRPPTRARGAPSPGVLGPHASEPQLAPPACTPAAPAVPPGPRSPQREPQVSHQFRAALQLVVDPGDPRS
LDNFIKIGEGSTGIVCIATVRSSGKLAVKKMDLRKQQRRELLFNEVVIMRDYQHENVVEMYSYLVGDELWVVVMEFLEG
GALTDIVTHTRMNEEQIAAVCLAVLQALSVLHAQGVHRDIKSDSILLTHDGRVKLSDFGCAQVSKVEVPRRKS LVGTPY
WMAPELISRLPYGPVEVDIWSLGIMVIEMVDGEPYFNEPPLKAMKMIRDNLPPRLKNLHKVSPSLKGFRLRLVDRDPAQR
ATAAELLKHPFLAKAGPPASIVPLMRQNRTR

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MAFANFRRIILRSTFEKRKSREYEHVRRDLDPNEVWEIVGELGDGAFGKVYKAKNKETGALAAAKVIETKSEEELEDYIV
EIEILATCDHPYIVKLLGAYYHDGKLWIMIEFCPPGGAVDAIMLELDRLTEPQIQVVCQMLEALNFLHSKR I IHRDLKA

Fig. 10B

GNVLMTLEGDIRLADFGVSANKLKTQLQRDSFIGTPYWMPEVVMCETMKDTPYDYKADIWSLGITLIEMAQIEPPHHEL
NPMRVLLKIAKSDPPTLLTPSKWSVEFRDFLKIALDKNPETRPSAAQLLEHPFVSSITSNKALRELVAEAKAEVMEEIED
GRDEGEEDAVDAASTLENHTQNSSEVSPPSLNADKPLEESPSTPLAPSQSDSVNEPCSPSGDRSLQTTSPPVVAPGN
ENGLAVPVPLRKSRPVSMARIQVAQEKQVAEQGGDLSPAANRSQKASQSRPNSSALETLGGKLANGSLLEPPAQAAAPGP
SKRSDCSSLCTSESMDYGTNLSTDLSLNKEMGSLSIKDPKLYKKTTLKRTRKFVVDGVEVSITTSKIISEDEKKDEEMRF
LRRQELRELRLQKEEHRNQTQLSNKHLEQLQEQMHKRFEEQINAKKKFFDTLENLERQKQKQVEKMEQDHA VRRREEAR
RIRLEQDRDYTRFQEQKLKMKKEVKNEVEKLPRQQRKESMKQKMEEHTQKKQLLDRDFVAKQKEDLELAMKRLTTDNRRRE
ICDKEREC LMKKQELLRDREAA LWEMEEHQLQERHQLVKQQLKDQYFLQRHEL LRKHEKEREQMQRYNQRMIEQLKVRQQ
QEKARLPKIQRSEKTRMAMYKKS LHINGGSAAEQREKIKQFSQQEEKRQKSERLQQQKQKHENQMRDMLAQCESNMSEL
QQLQNEKCHLLVEHETQKLKALDESHNQNLKEWRDKLRPRKKALEEDLNQKKREQEMFFKLSEEAECPNPSTPSKAAKFF
PYSSGDAS

Fig. 10C

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GGCCAAAGACGGTCGGGGCTGCTTAACCTCCAGGAAACAGGGTTTAAAGTTTTTTGAAACTGAAGTAGGTCTACACAGTAGGA
ACTCATGTCTATTTCTTAAGTAACACAGAGCGAATCAGGCGGTGGGTCTCGGAAAGTTCAATTGTTGAGGGCTTAAGAG
ATTTGGAACTATTTGGAGACCAATGATGCGAGCTCAGAGTCAATAGCATCTTCTCTAAACAGGAGGTCTATGAGTAGCTT
TCTGCCAGAGGGGTGTTACGAGCTGCTCACTGTGATAGGCAAGGATTTGAGGACCTGATGACTGTGAATCTAGCAA
GGTACAAACCAACAGGAGAGTACGTGACTGTACGGAGGATTAACTAGAGCTTGTTCCAATGAGATGGTAACATTCITG
CAGGGCAGCTGCATGCTCCAAACTTTCAACCATCCCAATATCGTGCCATATCGAGCCACTTTTATTCAGAGACAATGA
GCTGTGGGTTGTCACATCATTTATGGCATAACGGTTCTGCAAAAGATCTCATCTGTACACACTTTCATGGATGGCATGAATG
AGCTGGCGATTGCTTACATCTCGAGGGGTGCTGAAGGCCCTCGACTACATCCACCACATGGGATATGTACACAGGAGT
GTCAAAGCCAGCCACATCCCTGATCTCTGTGGATGGGAAGGTCTACCTGTCTGGTTTGGCGAGCAACCTCAGCATGATAAG
CCATGGGCAGCGGACGAGTGGTCCACGATTTTCCCAAGTACAGTGTCAAGGTTCTGCCGTGCTCAGCCCGAGGTCC
TCCAGCAGAATCTCCAGGGTTATGATGCCAAGTCTGACATCTACAGTGTGGGAATCACAGCCTGTGAACCTGGCCAAACGGC
CATGTCCCCCTTAAAGGATATGCCCTGCCACCCAGATGCTGTCTAGAGAACTGAACGGCACAGTGCCCTGCTGTGGATAC
CAGCACCATCCCCGCTGAGGAGCTGACCATGAGCCCTTCGCGCTCAGTGGCCAACTCTGGCCTGAGTGACAGCCTGACCA
CCAGCACCCCCGGCCCTCCAACGGTGACTCGCCCTCCACCCCTACCAACCGAACCTTCTCCCCCACTTCCACCACTT
GTGGAGCAGTGCCCTTCAGCGCAACCCGGATGCCAGGCCCAAGTCCAGCACCTCTCTGAACCACTCTTCTTCAAGCAGAT
CAAGCGACGTGCCCTCAGAGGCTTTGGCCCGAATTGCTTCGTCTGTCACCCCCCATCAACCAATTTTGAGGGCAGCCAGTCTC
AGGACCACAGTGGAACTTTTGGCCCTGGTAACAAACCTGGAAAGCTGGAGGTGGACGATTGGGAGTTCTGAGCCTCTGCA
AACTGTGCGCATCTCCAGCCAGGGATGCGAGGGCCACCCAGAGGCCCTTCTGAGGGCCGGCCACATTCCTCCGCCCTCT
GGCAGATTGGGTAGAAAGGACATCTTCCAGGAAAGTTGACTGCTGACTGATTGGGAAAGAAATCTCTGGAGAGATACT
TCACGTCTCCAAGGCTTTTGAGACACAAGGGAATCTCAACAACCAAGGATCAGGAGGTCCAAAGCCGACATTCCTCAGTC
CTGTGAGCTCAGGTGACCTCTCCGCAGAAAGAGAGATGCTGCTCTGGCCCTGGGAGCTGAATTCGAAGCCAGGGTTTGG
CTCCTTAAACCCGAGGACCCACCTCTTCCAGTGTCTGCGACCCAGCCTCATTTCTAATTTGCTCTCAGATGCCCT
CAGATGCTATAGGTCAGTGAAGGGCAAGTAGTAAAGCTGCCCTCCCTTCCCTCAGACCTCTCCCTCATAAATCCAGA
GAAGGGCATTTCTGTCTTTTTTAAGCACAGACTAAGGCTGGAACAGTCCATCTTATCCCTCTTCTGGCTTGGGCCCTGAC

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Fig. 11A

ACCTAAGTCTTTCCACGGTTTATGTGTGCTCATTCCTTTCCACCAAGAAATCCATCTTAGCGCCTCCTGCCAGCTG
CCCTGGTGCTTTCTCCAAAGGCCCATCAGTGCTCTTGCCCTAGCTTGAGGGCTTAAGTCCCTTAATGCTGTGTTAGTTTCGTTGT
CAGAACAAATTAAATTTTCAGAGACGGCTG

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AAGGAAGATAAAACAAAGCCCTTCTTTGGAAATAGATGGATTTTGTGCATTTCTGTGTGAACATAAGTGATTCAATGTCT
CTTTGGATTGCTTCTGCACCTCAAGAACACAAAGTTGAATCACTCAGACCTGAAACAGTCTGAAACAGTATCCATCA
ATACITGGTTGATGAGCCAAACCTTTCTCGGTACGTCACCTCAGCTAGAGCCAGTGAAGTACTATGTTCCACCAACGTTT
CTCACTATGAGCTCCAAGTAGAAATAGGAAGGATTGTGACAACTTGACTTCTGTCCATCTTGCCACGGCATACTCCCCACG
GGAACACTGGTAACATAAAATTAACAATCTGGAAACTGCAATGAAGAACGCCCTGAAAGCTTTACAGAAAGCCGTGAT
TCTATCCCACTTTTCCGGCATCCCAATATTACAACCTTATTGGACAGTTTTCACCTGTGGCAGCTGGCTTTGGGTTATTT
CTCCATTTATGGCCATGTTTTCAGCAAGTCAACTCTTGAGGACCTATTTTCCCTGAAGGAATGAGTGAACTTTTAATAAGA
AACATTTCTTTGGAGCCGTGAGAGGTTGAACTATCTGCACCAAAATGGCTGTATTACAGGAGTATTAAAGCCAGCCA
TATCCTCATTTCTGGTATGGCCTAGTGACCTCTCTGGCCTTTCCCATCTGCATAGTTTGGTTAAGCATGGACAGAGGC
ATAGGGCTGTGTATGATTTCCACAGTTCAGCACATCAGTGCAAGCCGTGGCTGAGTCCAGAACTACTGAGACAGGATTTA
CATGGGTATAATGTGAAGTCAGATATTIACAGTGTGGGATTACAGCATGTGAATTAGCCAGTGGCAGGTGCCCTTTCCA
GGACATGCATAGAACTCAGATGCTGTACAGAAACTGAAAGGTCCTCTTATAGCCCATTTGGATATCAGTATTTTCCCTC
AATCAGAAATCCAGAAATGAAAAATTTCCAGTCAGGTGTAGACTCTGGGATTGGAGAAAGTGTGCTTGTCTCCAGTGGAACT
CACACAGTAAATAGTGACCCGATTACACACACCATCTCTCAAAACTTTCTCTCCTGCCCTTCTTAGCTTGGTACAGCTCTG
TTTGCAACAAGATCCTGAGAAAGGCCATCAGCAAGCAGTTTATTGTCCCATGTTTCTTCAAAACAGATGAAAGAGAA
GCCAGGATTCAATACTTTCACTGTTGCCCTCTGCTTATAACAAGCCATCAATATCATTTGCCCTCCAGTGTACCTTGGACT
GAGCCAGAAATGTGATTTTCCCTGATGAAAAAGACTCATACTGGGAAATTTAGGGCTGCCAAATCATTTTATGTCCTATATA
CTTGACACTTTCTCCTTGTGCTTTTCTCTGTATTCTAGGTACAAATACCAGAAATATACITTGAAATAACAGTTGGT
GCCTGGAGAACTATTATTAAACCACTCTGTTCAAAGGGCCAGTTTGTAGTCCCTCTGTTTCGCACAGAGTACT
ATGACAAAGGAAACATCAGAAATTACTAATCTAGCTAGTGTCAATTTATTCTGGAAATTTTCTAAGCTGTGACTAATCTT

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Fig. 11B

TTTATCTCTCAATATAATTTTGTAGCCAGTTAAATTTTTCAGTATTTTGTCTGTCCCTTGGGAATGGGCCCTCAGAGGAC
AGTGCTTCCAAAGTACATCTTCTCCAGATCTCTGGCCCTTTTAAATGAGCTATTGTAAACCAACAGGCTAGTTTATCTT
ACATCAGACCCCTTTCTGGTAGAGGGAAATGTTTGTGCTTTCCCTTTTCTTCTGTTAATACTTATGGTAACACCTAAC
TGAGCCCTCACTCACATTAAATGATTCACCTTGAAATATATACAGAAATGTGAATTTGCTTTTAAAGGGGGCTAA
AGTAACACTTTCCTACTTATGTAAATTATAGATCCTAAATTACGCACTCCGTGGGAGCTCAATAAAGATTTACTGAATT
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TCAACAGGGACGATTACGAGCTGCAGGAGGTGATCGGGAGTGGAGCAACTGCTGTAGTCCAAGCAGCTTATTGTGCCCT
AAAAGGAGAAAGTGGCAATCAAAACGGATAAACCTTGAGAAATGTCAAACTAGCATGGATGAACCTCTGAAAGAAATTCA
AGCCATGAGTCAATGCCATCATCCTAAATATGTATCTTACACACATCTTTTGTGGTAAAGATGAGCTGTGGCTTGTCTCA
TGAAAGCTGCTAAGTGGAGGTCTGTCTGGATATATTAAGCACATTTGTGGCAAAAGGGGAACACAAAAGT

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ATGGCGGGACCTGGGGCTGGAGGGACAGGGAGGTCAAGGATCTGGGCCACCTGCGGGATCCAACCTGGAAATATCTCACT
AGATAAAACCATTTGGCCCTTGGTACTTATGGCAGAACTCTATTTGGGACTTCATGAGAAAGACTGGTGCAATTACAGCTGTTA
AAGTGATGAACGCTCGTAAGGATGAGGAAGAGGATCTCAGGACTGAACCTCAACCTTCTGAGGAAGTACTCTTCCACAAA
AACATTGTGTCTTCTATGGAGCATTTTTCAGCTGAGTCCCCCTGGTCAGCGGCCACCACTTTGGATGGTGATGGAGTT
ATGTGAGCAGGTTTCGGTCACTGATGTAGTGAGAAATGACCAGTAAATCAGAGTTTAAAGAAGATTGGATTGCTTATATCT
GCCGAGAAATCCTTCAGGGCTTAGCTCACCTTCACGCAACACCGAGTAAATTCACCGGGACATCAAGGTCAGAAATGTGCTG
CTGACTCATAAATGCTGAAGTAAACCTGGTTGATTTTGGAGTGAGTGCCCCAGGTGAGCAGAACTAAATGGAAAGGAATAG
TTTCAATTGGGACACCATACTGGATGGCACCTGAGGTGATTGACTGTGATGAGGACCCCAAGACGCTCCTATGATTACAGAA
GTGATGTGTGGTCTGTGGGAATTACTGCCATTGAAATGGCTGAAGGAGCCCTCCTCTGTGTAACTTCAACCCCTTGGAA
GCTCTCTTCGTTATTTTGGGGGAATCTGCTCCCCACAGTCAAAATCCAGCGGATGGTCCCGTAAGTTCACCAATTTTCATGGA
AAAGTGACGATAAAAAATTTCTGTTCGTACTTCTGCAACATGCTTCAACACCCCATTTGTTCGGGATATAAAAA

Fig. 11C

ATGAACGACATGTTGTTGAGTCATTAAACAAGGCATCTTACTIGGAATCATTAATAAAGACAGAAAAAGAACAGGCACGG
GAGAAAAAATCAAAAGTTTCTACTCTGAGGCAAGCACTGGCAAAAGACTATCACCAAGAGGTTTCAGGGCAAAAGTCATC
ATGGAGACCTGAAAAGCITGAACTCTCGGATTIAGAAAGCCCGCAGGCCAAAGGCCAACGCAGATGGGAAGATATCTTTA
ATCAGCATGAGGAAGAAATTGAGACAAGTTGATAAAGACAAGAAGATGAATCATCAGACAATGATGAAGTATTTTCATTGG
ATTGAGGCTGAAGTCCAGATAGAGCCATTGAAGCCATACATTTCAAAATCCTAAAAAATTGAGGTTCAAGAGAGATCTCC
TTCTGTGCCCTAACACACAGGATCATGCACATCATGTCAAGTTCTTTCAAGCCTTCTCAGCGGTCTCTTTTGGAAACAAG
CTCAGAAGCCCATTTGACATCAGACAAGGAGTTTCGCAAAATCGTCAAAATTGGCTGGCAGCATCAGGTGATTCAAGCAC
AAAAATTTAGCAGGCAAAACACAGAGCTACTGTTTAACAATTTATATTTCAAGAGTCAAGAAAGAGAATTTCAAGAAAGG
AATGAATCAAAAGTGTGAGGAGCCCAAGTAGGATTAGGACCTGAAGGCCATTGTATTTGGCAATTGGGTGAATCTTCTT
CTGAGGAAGAAAGTCCCTGTGACTGGAGGAGGTCTCAGTCATCACCACTTATTTCTACTATTGATCAGAAAGTTGCTGGTT
GACATCCATGTTCCAGATGGATTATAAGTAGGAAAAATATCACCCCTGTATACCTTGACAAACGAATGGGTAGGCTATAA
TGCACTCTCTGAAATCTTCCGGAATGATTGGTTAACTCCGGCACCTGTCTATTAGCCACCTGAAGAGGATGGTGATTATG
TTGAACTCTATGATGCCAGTGCTGATACCTGATGGTGAATGATGATGATGATGATGATGATGATGATGATGATGATGATGAT
CATGCCAATGGCAATGATGACTTGGATAACCAAGTTGATCAGGCTAATGATGTTTGTAAAGACCATGATGATGATGACAAACA
TAAGTTTGTGATGATGATAATAATAATTATTATGAGGCGCTAGTTGTCCAAGGGCAAGCTATGGCAGAGATGGAAAGCT
GCAAGCAAGATGGTTATGATGGAGTCTGTGGAAGAGGAGCCCTACAGAGGCTATGGAAAGCCATACAGCCCAATAGAAAGC
CATGGAGGAAGTGCAGCCAGTGAGGACAAATGCAGCCATTGGAGATCAGGAAGAACATGCAGCCCAATATAGGCAGTGAAAG
AAGAGGCAGTGAGGGTGATGGAGGYAAGGGAGTCGTTTCGAACCAAGTGAAGAGAGTGAGGCCCTTGGACTCAATGGAGAAG
AAAAATGCTCAGAGACAGATGGTCCAGGATTGAAGAGACCTGCGTCTCAGGACITTTGAATATCTACAGGAGGAGCCAGGT
GGTGGAAATGAGGCCCTCAAAATGCCATTGACTCAGGTGCTGCACCCGTGAGCACCTTGATCATGAGAGTGACAAATAGGACAT
ATCAGAAATCATCAACACAATCAGATTTTCTGCCAATCCTCATCTCTTCCAAAGTTCTGGGATGCTGCTGATGCTA
ACTTTGCCAGTGCCATCTTATACGCTGGATTTCGTAGAAGTACCTTGAGGAATCACCTAAGCAACCTCTGAAGTCAATGTT
AAGCCACTCTATGCTCTCTGCAATGTAAAAAACCACTAATCCACATGTATGAAAAGGAGTTCACTTCTGAGATCTGCTG
TGGTTCTTTGTGGGGAGTCAATTTGCTGTTGGGAACCCGATCTAATCTATATCTGATGGACAGAAAGTGGAAAGGCTGACA
TTACTAAACTTATAAGGCGAAGACCATTCCGGCAGATTCAAGTCTTAGAGCCACTCAATTTGCTGATTACCATCTCAGGT

CATAAGAACAGACTTCGGGTGATCATCTGACCTGGTTGAGGGAACAAGATTTTGAATAATGATCCAGAAAGTAAAGAAAG
GCAAGAAGAAATGCTGAAGACAGAGGAGCCTGCAAAAGCTATTGATAAGTTAACAGGCTGTGAACACTTCAGTGCTCTCC
AACATGAAGAAACAACATATATTGCAATTGCTTTGAAATCATCAATTACCTTTATGCATGGGCACCAAGTCCTTTGAT
GAAAGCACTGCTATTAAAGTATTTCCAACACTTGATCATAGCCAGTGACAGTTGACCTGGCTATTGGTTCTGAAAAAAG
ACTAAAGATTTTCTTCAGCTCAGCAGATGGATATCACCTCATCGATGCAGAACTCGAGGTTATGTCIGATGTGACCCCTGC
CAAAGAAATCCCCCTGGAAATCATTAACACAGAAATCATCATTTTACCTGATTGCTTGGGAAATTGGCATGATGCTCACC
TTCAATGCTGAAGCCCTCTCTGTGGAAGCAAAATGAACAACCTCTTCAAGAAAGATCCTTGAAAATGTGGAAAGACATACCATC
TTCTATAGCTTTTGAAATGTACACAGCGAACCAACAGGATGGGGCCAAAAGGCCAATTGAAGTGCCTCTTTGCCAATCCAGGG
TTTCTGGAAAGTGAGCTGAAGCGCAGGTCAAATTAAGAAAGCTGAGATTCTGTGCACCCCGGGGTGACAAAGCTGTTCTTTACC
TCTACCCCTGCGCAATCACCCACAGCCGGGTTTACTTCAATGACACTTGGAAAACCTTGAAGAGCTCCAAAGCAATTATGATGT
CTAA

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[illegible]

Fig. 11E

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[illegible]

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Fig. 11F

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CGAAGCCACAGCCCGAGCCCGAGCCCGGCGGCCACCGCGCCCCGGCCCATGGCTTTTGGCCAAATTTCGGCC
GCATCCCTGGCCCTGTCTACCTTCGAGAGAGAGAAAGTCCCGCGGAATATGAGCACGTCCGCCCGGACCTGGACCCCAACGAG
GTGTGGGAGATCGTGGCGGAGCTGGCGGACGCGCCCTTCGGCAAGGTTTACAAGGCCAAGAAATAAGGAGACGGGTGCTTT
GGCTGGGGCCAAAGTCAATTGAACCAAGAGTGAGGAGCTGGAGGACTACATCTGTGGAGATTGAGATCCTGGCCACCT
GGACCCACCCCTACATTGTGAAGCTCCTGGAGCCTACTATCACGACGGGAAGCTGTGGATCATGATTGAGTTCTGTCCA
GGGGAGCCCGTGACGCCCATCATGTCTGGAGCTGGACAGAGCCCTCACGGAGCCCCAGATACAGGTGGTTTGGCCGCCAGAT
GCTAGAAGCCCTCAACTTCCTGCACAGCAAGAGGATCATCCACCGAGATCTGAAGACTCTACAGAAACGAGATTCTTTCATCGGC
AGGAGACATCAGGCTGGCTGACTTTGGTGTCTGCCAAGAACTCTGAAGACTCTACAGAAACGAGATTCTTTCATCGGC
ACGCCCTTACTGGATGGCCCCCGAGGTGGTTCATGTGTGAGACCATGAAGACACGCCCTACGACTACAAGCCGACATCTG
GTCCCTGGGCATCACGCTGATTGAGATGGCCCCAGATCGAGCCGCCACACCGAGCTCAACCCCATGCGGGTCTTGCTAA
AGATCGCCCAAGTCGGACCCCTCCACGGCTGCTCACGCCCTCCAAGTGGTCTGTAGAGTTCCGTGACTTCCGTGAAGATAGCC
CTGGATAAGAACCCAGAACCCGACCCAGTGCCGCGCAGCTGTCTGGAGCATCCCTTCGTGAGCAGCATCACCCAGTAACAA
GGCTCTGGGGAGCTGGTGGCTGAGGCCAAGGCCGAGGTGATGGAAAGAGATCGAAGACGGCCGGGATGAGGGGGAAGAGG
AGGACGCCGTGGATGCCGCCCTCCACCCCTGAGAACCATATCTCAGAACTCCTCTGAGGTGAGTCCGCCAAGCCTCAATGCT
GACAAAGCCTCTCGAGGAGTCACTTCCACCCCGCTGGCACCCAGCCAGTCTCAGGACAGTGTGAATGAGCCCTGCCAGCCA
GCCCTCTGGGACAGATCCCTCCAAACCAACAGTCCCGCAGTCTGGCCCTTGGAAATGAGAACGGCCCTGGCAGTGCCTG
TGCCCTTGCGGAAGTCCCGACCCGTGTCAATGGATGCCAGAAATTCAGGTAGCCCCAGGAGAACAGTTGCTGAGCAGGGT
GGGGACCTCAGCCCGAGCCACAGATCTCAAAAGGCCAGCCAGAGCCGCCCAACAGCAGGCCCTGGAGACCTTGGG
TGGGGAGAAAGCTGGCCCAATGGCAGCCCTGGAGCCACCTGCCCAGGACGCTCCAGGGCCTTCCAAGAGGACTCGGACTGCA
GCAGCCTCTGCACCTCTGAGAGCATGGACTATGGTACCAATCTCTCACTGACCTGTGCTGAACAAAGAGATGGGCTCT
CTGTCCATCAAGGACCCGAACTGTACAAAACCCCTCAAGCGGACACGCAAAATTTGTGGTGGATGGTGTGGAGGTGAG
CATCACCACTCCAAGATCATCAGCGAAGATGAGAGAAAGGATGAGGAGATGAGATTTCTCAGGCCCGCAGGAACCTCCGAG
AGCTTCGGCTGCTCCAGAAAGAGGCAATCGGAACCAAGCCAGCTGAGTAACAAAGCATGAGCTGCAGCTGGAGCAAATG
CATAACGTTTTGAACAGGAAATCAACGCCAAGAGAAAGTTCTTTGACACGGAAATTAGAGAACCTGGAGCGTCAGCAAAA

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Fig. 11G

GCAGCAAGTGGAGAAGATGGAGCAAGACCATGCCGTGCGCCGCGGGAGGAGGCCAGGGGGATCCGCCCTGGAGCAGGATC
GGGACTACACCAAGGTTCCAAGAGCAGCTCAAACTGATGAAGAAAGAGGTGAAGAACGAGGTGGAGAAAGCTCCCCGACAG
CAGCGGAAGGAAGCATGAAGCAGAAGATGGAGGAGCACACGCAGAAAGCAGCTTCTTGACCGGGACTTTGTAGCCAA
GCAGAGGAGGACCTGGAGCTGGCCATGAAGAGGCTCACCAACCGACAACAGCGGGGAGATCTGTGACAAAGGCGCGAGT
GCCCTCATGAAGAAAGCAGGAGCTCCCTTCGAGACCGGGAAGCAGCCCTGTGGGAGATGGAAGAGCACCAAGCTGCAGGAGAGG
CACCAGCTGGTGAAGCAGCAGCTCAAAGACCACTTCTCCAGCGGCACGAGCTGCTGCCCAAGCATGAGAAAGGAGCG
GGAGCAGATGCAGCGCTACAACCAAGCGCATGATAGAGCAGCTGAAGTGGGAGCAACAGGAAAGCGCGCTGCCCA
AGATCCAGAGGAGTGAGGGCAAGACGCGCATGGCCATGTACAAGAGAGCTCCACATCAACGGCGGGGCGAGCGCAAGCT
GAGCAGCGTGAGAAGATCAAGCAGTTCTCCAGCAGGAGGAGAGGAGAGTCCGAGCGGCTGCAGCAACAGCAGAA
ACACGAGAACCAAGATGCGGGACATGCTGGCGCAGTGCAGAGCAACATGAGCGAGCTGCAGAGCTGCAGAAATGAAAAGT
GCCACCTCCTGGTAGACACGAAACCCAGAAACTGAAGGCCCTGGATGAGAGCCATAACCAAGAACCTGAAGGAATGGCCG
GACAAAGCTTCGGCCGCGCAAGAGGCTCTGGAAAGAGGATCTGAACCAAGAGGCGGAGCAGGAGATGTTCTTCAAGCT
GAGCGAGGAGCGGAGTGCCCCAAACCCCTCCACCCCAAGCAAGGCCCAAGTTCTTCCCCCTACAGCTCTGGGGATGCTT
CC

Fig. 11H

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STLK5_h	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	0															
SPAK_h	MAEP	S	G	S	P	V	H	V	Q	L	P	Q	Q	A	A	P	V	T	A	A	A	A	P	A	A	T	A	A	P	A	A	P	A	P	A	P	A	50														
STLK6_h	P	S	T	R	A	S	E	-	V	L	C	S	T	N	V	S	H	Y	E	L	Q	V	E	I	G	R	G	F	D	N	L	T	S	V	H	L	A	R	H	T	P	T	G	T	L	V	T	I	K	I	90	
STLK5_h	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	9					
SPAK_h	P	A	A	Q	A	V	G	W	P	I	C	R	D	A	-	-	-	Y	E	L	Q	E	V	I	G	S	G	A	T	A	V	-	-	V	Q	A	A	L	C	K	P	R	Q	E	R	V	A	I	K	R	95	
STLK7_h	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	35					
STLK6_h	T	N	L	E	N	C	N	E	E	R	L	K	A	L	Q	K	A	V	I	L	S	H	F	F	R	H	P	N	I	T	T	Y	W	T	V	E	T	V	G	S	W	L	W	V	I	S	P	F	M	A	140	
STLK5_h	I	N	L	E	A	C	S	N	E	M	V	T	S	-	C	R	A	S	C	M	F	Q	T	L	N	H	P	N	I	V	P	Y	R	A	T	L	I	A	D	N	E	L	W	V	T	S	F	M	A	58		
SPAK_h	I	N	L	E	K	C	Q	T	S	M	D	E	L	L	K	E	I	Q	A	M	S	Q	C	-	S	H	P	N	V	T	Y	T	S	F	V	V	K	D	E	L	W	L	V	M	K	L	L	S	144			
STLK7_h	I	N	L	E	K	C	Q	T	S	M	D	E	L	L	K	E	I	Q	A	M	S	Q	C	-	H	H	P	N	I	V	S	Y	Y	T	S	F	V	V	K	D	E	L	W	L	V	M	K	L	L	S	84	
STLK6_h	Y	G	S	A	S	Q	L	L	R	T	Y	F	P	E	G	-	-	-	-	-	-	M	S	E	T	L	I	R	N	I	L	F	G	A	V	R	G	L	N	Y	L	H	Q	N	G	C	I	H	R	S	184	
STLK5_h	Y	G	S	A	K	D	L	I	C	T	H	F	M	D	G	-	-	-	-	-	-	M	N	E	L	A	I	A	Y	I	L	Q	G	V	L	K	A	L	D	Y	I	H	M	G	Y	V	H	R	S	102		
SPAK_h	G	G	S	M	L	D	I	I	K	Y	I	V	N	R	G	E	H	K	N	G	V	L	E	E	A	I	A	T	I	L	K	E	V	L	E	G	L	D	Y	L	H	R	N	G	Q	I	H	R	D	194		
STLK7_h	G	G	S	V	L	D	I	I	K	H	I	V	A	K	G	E	H	K	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	103		
STLK6_h	I	K	A	S	H	I	L	I	S	G	D	G	L	V	T	L	S	G	L	S	H	L	H	S	L	V	K	H	G	Q	-	-	R	H	R	A	V	Y	D	F	P	Q	F	S	T	S	V	Q	P	W	232	
STLK5_h	V	K	A	S	H	I	L	I	S	V	D	G	K	V	Y	L	S	G	L	R	S	N	L	S	M	I	S	H	G	Q	-	-	R	Q	R	V	V	H	D	F	P	K	Y	S	V	K	V	L	P	W	150	
SPAK_h	L	K	A	G	N	I	L	L	G	E	D	G	S	V	Q	I	A	D	F	G	V	S	A	F	L	A	T	G	G	D	V	T	R	N	K	V	R	K	T	F	-	-	-	-	-	-	-	-	-	-	-	240

Fig. 12A

METHODS

Inventor(s): Gregory PLOWMAN

et al.

Attorney Docket No.: 034536-0688

67176

Fig. 12B

PAK1_h U51120	MSNNGLDIQDKPPAPPMRNTSTMIGAGSKDAGTLNHGSKPLPPNPEEKKKDRFYRSILP	60
PAK4_h	-----	0
PAK5_h	-----	0
PAK1_h U51120	GDKTNKKKEKERPEISLPSDFEHTIHVGFDAVI-GEFTGMPEQWARLLQTSNITKS	115
PAK4_h	---MFRKKKKRRPEISAPQNFQHRVHTSFDPKEGKFVGLPPQWQNIID-ITRRPKPVVDP	56
PAK5_h	---MF-GKRKKRVEISAPSNFEHRVHTGFDQHEQKFTGLPRQWQSLIEESARRPKPLVDP	56
PAK1_h U51120	-----	115
PAK4_h	SRI TRVQLQPMKTVVRGSA MPVDGYISGLLNDIQKLSVISSNTLRGRSPTSRRAQLGL	116
PAK5_h	ACITSIQPGAPKTIIVRGSKGAKDGA LTL LLD E FENM SVTRSN SLRRDSPPPARAR	112
PAK1_h U51120	-----	115
PAK4_h	LGDEHWATDPDMYLQSPQSERTDPHGLYLSGNGGTPAGHKQMPWPEPQSPRVLPNGLAK	176
PAK5_h	-----QENGMP EEPAT TARGGP GK	131
PAK1_h U51120	-----	127
PAK4_h	AQSLGPAEFQGA SQRCLQLGACLQSSPPGASPTGTNRHGMKAAKHGSEEARPQSCLVGS	236
PAK5_h	AGSRGR-----FAGHSEAGGSGGDRRRAGPEKRPKSSREGSGGPQESSRDKRP--LSGP	183
PAK1_h U51120	LEFY-NSKKTSNSQKYM SFTDKS-----AEDYNSSNALNVKA-----VSETPAVPPVS	174
PAK4_h	ATGRPGGEGSPSPKTRSS LKRR LFRSMFLSTAATAPSSSKPGPPQSKPNSSFRPPQK	296
PAK5_h	DVGTPQPA GLASGAKLAAG-----RPFNTYPRADTDHP SRGAQGEPHDVAPNGP-----	232

PAK1_h U51120	E	E	D	D	D	D	D	D	A	T	P	P	P	V	I	A	P	R	P	E	H	T	K	S	V	T	R	S	-	-	-	-	V	I	E	P	L	P	V	T	P	T	R	D	V	A	T	S	P	T	E	N	T	T	230							
PAK4_h	D	N	P	P	S	L	V	A	K	A	Q	S	L	P	S	D	Q	P	V	G	T	F	S	P	L	T	S	D	T	S	S	P	Q	K	S	L	R	T	A	P	A	T	G	Q	L	P	G	R	S	S	P	A	G	S	P	R	T	W	H	356		
PAK5_h	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	S	A	G	G	L	A	T	P	O	S	S	S	S	S	R	P	P	T	R	A	R	G	A	P	S	P	G	V	L	-	-	-	-	-	-	-	-	-	G	P	H	A	S	E	268
PAK1_h U51120	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	D	A	L	T	L	N	T	E	K	Q	K	K	P	K	M	S	D	E	E	I	L	E	K	L	R	S	I	V	S	V	G	D	P	K	K	K	Y	T	R	F	E	K	I	276
PAK4_h	A	Q	T	S	T	S	N	L	Y	L	P	Q	D	P	T	V	A	K	G	A	-	-	-	L	A	G	E	D	T	G	V	V	T	H	E	Q	F	K	A	A	L	R	M	V	V	D	Q	G	D	P	R	L	L	D	S	Y	V	K	I	413		
PAK5_h	P	Q	L	A	P	P	A	-	C	T	P	A	A	P	A	V	P	G	P	P	R	S	P	Q	R	E	P	Q	R	V	S	H	E	Q	F	R	A	A	L	Q	L	V	V	D	P	G	D	P	R	S	Y	L	D	N	F	I	K	I	327			
PAK1_h U51120	G	Q	G	A	S	G	T	V	Y	T	A	M	D	V	A	T	G	Q	E	V	A	T	K	Q	M	N	L	Q	Q	P	K	K	E	L	I	T	I	N	E	L	V	M	R	E	N	K	N	I	V	N	Y	L	D	S	Y	L	V	336				
PAK4_h	G	E	G	S	T	G	I	V	C	L	A	R	E	K	H	S	G	R	Q	V	A	V	K	M	D	L	R	K	Q	Q	R	R	E	L	L	F	N	E	V	I	M	R	D	Y	Q	H	E	N	V	V	E	Y	K	S	Y	L	V	473				
PAK5_h	G	E	G	S	T	G	I	V	C	I	A	T	V	R	S	S	G	K	L	V	A	V	K	K	M	D	L	R	K	Q	Q	R	R	E	L	L	F	N	E	V	I	M	R	D	Y	Q	H	E	N	V	V	E	Y	N	S	Y	L	V	387			
PAK1_h U51120	G	D	E	L	W	V	V	M	E	Y	L	A	G	G	S	L	T	D	V	V	T	E	T	C	M	D	E	G	Q	I	A	A	V	C	R	E	C	L	Q	A	L	E	S	L	H	S	N	Q	V	I	H	R	D	I	K	S	D	N	I	L	396	
PAK4_h	G	E	E	L	W	V	L	M	E	F	L	Q	G	A	L	T	D	I	V	S	Q	V	R	L	N	E	E	Q	I	A	T	V	C	E	A	V	L	Q	A	L	A	Y	L	H	A	Q	G	V	I	H	R	D	I	K	S	D	S	I	L	533		
PAK5_h	G	D	E	L	W	V	V	M	E	F	L	E	G	G	A	L	T	D	I	V	T	H	T	R	M	N	E	E	Q	I	A	A	V	C	L	A	V	L	Q	A	L	S	V	L	H	A	Q	G	V	I	H	R	D	I	K	S	D	S	I	L	447	
PAK1_h U51120	L	G	M	D	G	S	V	K	L	I	D	F	G	F	C	A	Q	I	T	P	E	Q	S	K	R	S	T	M	V	G	T	P	Y	W	M	A	P	E	V	V	T	R	K	A	Y	G	P	K	V	D	I	W	S	L	G	I	M	A	I	E	456	
PAK4_h	L	T	L	D	G	R	V	K	L	S	D	F	G	F	C	A	Q	I	S	K	D	V	P	K	R	K	S	L	V	G	T	P	Y	W	M	A	P	E	V	I	S	R	S	L	Y	A	T	E	V	D	I	W	S	L	G	I	M	V	I	E	593	
PAK5_h	L	T	H	D	G	R	V	K	L	S	D	F	G	F	C	A	Q	I	S	K	E	V	P	R	R	K	S	L	V	G	T	P	Y	W	M	A	P	E	I	S	R	L	P	Y	G	P	E	V	D	I	W	S	L	G	I	M	V	I	E	507		
PAK1_h U51120	M	I	E	G	E	P	P	Y	L	N	E	N	P	L	R	A	L	Y	L	I	A	T	N	G	T	P	E	L	Q	N	P	E	K	L	S	A	T	F	R	D	F	L	N	R	C	L	E	M	D	V	E	K	R	G	S	A	K	E	L	L	516	
PAK4_h	M	V	D	G	E	P	P	Y	F	S	D	S	P	V	Q	A	M	K	R	I	R	D	S	P	P	K	L	K	N	S	H	K	V	S	P	V	L	R	D	F	L	E	R	M	L	V	R	D	P	Q	E	R	A	T	A	Q	E	L	L	653		
PAK5_h	M	V	D	G	E	P	P	Y	F	N	E	P	L	K	A	M	K	M	I	R	D	N	L	P	P	R	L	K	N	L	H	K	V	S	P	S	L	K	G	F	L	D	R	L	L	V	R	D	P	A	Q	R	A	T	A	E	L	L	567			

Fig. 13B

Title: PAK5 SCREENING

METHODS

Inventor(s): Gregory PLOWMAN
et al.

Attorney Docket No.: 034536-0688

PAK1_h U51120

PAK4_h


PAK5_h

Q	H	Q	F	L	K	I	A	K	P	L	S	S	L	I	P	L	I	A	A	K	E	A	T	K	N	N	H
D	H	P	F	L	L	Q	T	G	L	P	E	C	L	V	P	L	I	Q	L	Y	R	K	Q	T	S	T	C
K	H	P	F	L	A	K	A	G	P	P	A	S	I	V	P	L	M	R	Q	N	I	R	T	R			

545

681

591

 RESIDUES THAT MATCH THE CONSENSUS NAMED CONSENSUS #1 EXACTLY.


 BOX RESIDUES THAT MATCH THE CONSENSUS EXACTLY.

Fig. 13C

ZC4_h.pro	MAGPGGWRDREVTDLGHLDPDTGIFSLDKTIGLGTYGRIYLGHEKTGAF	50
ZC1_h.pro	MANDSPAKSLVDIDLSSLRDPAGIFE[L]VEVVGNGTYGQVYKGRHVKTGQL	50
ZC4_h.pro	TAVKVMNARKDEEEDLRT[ELNLLRKYSFHKNI]VSFYGAFFKLSPPGQRHQ	100
ZC1_h.pro	AAI[KVM]DVTEDEEEEIKLEI[NML]KKYSH[HRN]IATYYGAFI[KKSP]PGHDDQ	100
ZC4_h.pro	LWMVME[LCAGSVTDVVRMT]SNQSLKEDWIAIYICREILLOGLAHLHAHRVI	150
ZC1_h.pro	LW[L]VMEFCGAGSIITD[L]VKNT[KGNTILKEDWIAIYISREILRGLAHLHIHVI	150
ZC4_h.pro	HRDIKGQNVLLTHNAEVKLVDFGVSAQVSRTNGRRNSFIGTPTYWMAPEVI	200
ZC1_h.pro	HRDIKGQNVLLTE[NAEVKLVDFGVSAQLDRTV]GRRNTFIGTPTYWMAPEVI	200
ZC4_h.pro	DCDEDPRRSYDYRS[DVWSVGITAI]EMAEGAPPLCNLOPLEAFVILRESA	250
ZC1_h.pro	ACDENP[DATYDYRS]DLW[SCGITAI]EMAEGAPPLCD[MH]PMRALFLIPRNPP	250
ZC4_h.pro	P[TVKSSGWSRK]F[IN]FMEKCTIKNLEFERTSANMLQHPFVRDIKNERHVVE	300
ZC1_h.pro	PRLKSKK[WSK]KFFSFEI[EGCL]VKNYMQRPSTEQLLKHPTIRDQPN[ERQ]VRI	300
ZC4_h.pro	SLTRHLTGIIKKR[-----QKKEQAREKKS	324
ZC1_h.pro	QLKDHIDRTRK[R]GEKDETEYEYSGSEEEEEVEPEQEGEPSSIVNVPGES	350
ZC4_h.pro	KVSTLRQALAKRLSPKRFRAKSSWRPEKLELSDLEARRQRRORRWEDIFN	374
ZC1_h.pro	TLRRDFLR[L]QQENKERSEALRRQQLLQEQL[REQE]EYKRQLLAERQKRIE	400
ZC4_h.pro	QHEEELROVDKDKED[ESSDNDEVFHSIOAEVQTE]PLKPYISNPKKIEVQE	424
ZC1_h.pro	QQKEQRRRLEEQQRR[EREARRQQEREQRRREQ]EEKRRLEELERRRK[EE]EE	450

Fig. 14A

ZC4_h.pro	RSPSPNNQDHAHHVVKFSSVPPQRSLLLEQAQKPIDIRQRSSQNRRQNWLAAR	474
ZC1_h.pro	RRRAEEKRRVEREQEYIRRRQLEEEQRHLEVLQQQLLQEQAMLLLECRWRE	500
ZC4_h.pro	SGDSKHKILAGKTQSYCLTIYIYISEVKKKEEFQEGMNQKCCQGAQVGLGPPEGH	524
ZC1_h.pro	MEEHRQAERLQRQLQEQAYLLSLQHDHRRPHPHQSQQPPPPQQERSKPS	550
ZC4_h.pro	CIWQLGESSSEESPVTGRRSQSSPPYSTIDQKLLVDIHVPDGGFKVKGIS	574
ZC1_h.pro	FHAPEPKAHYEPADRAREVEDRFRKTNHSSPEAQSKQTGRVLEPPVPSRS	600
ZC4_h.pro	PPVYLTNEWVGYNALSEIFRNDWLTAPVIOPPPEEDGDYVELYDASADTD	624
ZC1_h.pro	ESFSNGNSESVHPALQRPAPQVPVRTTSRSPVLSRRDSPLQGSGQQNSQ	650
ZC4_h.pro	GDDDESNDFEDTYDHANGNDLDNQVDQANDVCKDHDDNNKFVDDVN	674
ZC1_h.pro	AGQRNSTIEPRLLWERVEKLVPRPGSGSSGSSNSGSPGSHPGSQSGS	700
ZC4_h.pro	NNYYEAPSCPRASYGRDGGSCKQDGYDGSRGKEEAYRGYGSHTANRSHGGS	724
ZC1_h.pro	GERFRVRSSSKSEGPSQRLENNAVKKPEDKKEVFRPLKPADLTALAKELR	750
ZC4_h.pro	AASEDNAAIGDQEEHAAANTIGSERRGSEGDGKGKGVVRTSEESGALGLNGEE	774
ZC1_h.pro	AVEDVRPPHKVTDYSSSSEESGTTDEEDDVEQEGADESTSGPEDTRAAS	800
ZC4_h.pro	NCSETDGPGLKRPASODFEYLQEPGGGNEASNAIDSGAAPSPDHESDN	824
ZC1_h.pro	SLNLSNGETESVKTMIVHDDVESEPAMTPSKEGTLIVRRRTQSSASTLQKH	850
ZC4_h.pro	KDISESSTQSDFSANHSSPSKGSGMSADANFAAAILYAGFVEVPPEESPKQ	874
ZC1_h.pro	KSSSFTFPFIDPRLLQISPSISGTTVTSVVGFSKCDGMRPE--AIRQDPTRK	898

Fig. 14B

BOX RESIDUES THAT MATCH ZC4_h.pro EXACTLY:

Fig. 14C

Title: PAK5 SCREENING

METHODS

Inventor(s): Gregory PLOWMAN

et al.

Attorney Docket No.: 034536-0688

Db = LOK1_m

Qy = GEK2_h

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*****
1  MAFANFRIRLSTFEKRKSREYEHVRRDLDPNDVWEIVGELGDGAFGKVYKAKNKETGA 60
Qy 1  MAFANFRIRLSTFEKRKSREYEHVRRDLDPNEVWEIVGELGDGAFGKVYKAKNKETGA 60

*****
61 LAAAKVIETKSEEELEDYIVEIEILATCDHPYIVKLLGAYYYDGKLWIMIEFCPPGGAVDA 120
Qy 61 LAAAKVIETKSEEELEDYIVEIEILATCDHPYIVKLLGAYYYHDGKLWIMIEFCPPGGAVDA 120

*****
121 IMLELDRGLTEPQIQVVCRCQMLEALNFLHGKRIIHRDLKAGNVLMTLEGDIRLADFGVSA 180
Qy 121 IMLELDRGLTEPQIQVVCRCQMLEALNFLHSGKRIIHRDLKAGNVLMTLEGDIRLADFGVSA 180

*****
181 KNLKTLQKRDSFIGTPYWMAPENVLCETMKDAPYDYKADIWSLGITLIEMAQIEPPHHEL 240
Qy 181 KNLKTLQKRDSFIGTPYWMAPENVCMETMKDTPYDYKADIWSLGITLIEMAQIEPPHHEL 240

*****
241 NPMRVLLKIAKSDPPTLLTPSKWSVEFRDFLKIALLDKNPETRPSAAQLLQHPFVSRVTSN 300
Qy 241 NPMRVLLKIAKSDPPTLLTPSKWSVEFRDFLKIALLDKNPETRPSAAQLLEHPFVSSITSN 300

*****
301 KALRELVAEAKAEVMEEIEDGREGEDGEEEDAVDAVPPPLVNHTQDSANVTQPSLDSNKLLQD 360
Qy 301 KALRELVAEAKAEVMEEIEDGRDEGEFEEDAVDAASTLENHTQNSSEVSPPSLNADKPLEE 360

```

Fig. 15A

* * * * *
Db 361 S-STPLPPSQPEPVNGPCSPSGDGPLQTTSPADGLSKNDNDLKVPVPLRKSRPLSMDA 419
Qy 361 SPSTPLAPSQSQDSVNEPCSPSGDRSLQTTSPPVVAPGNENGLAVPVPLRKSRPVSM DA 420

* * * * *
Db 420 RIQMDEEKQIPDQDENPSPAASKSQKANQSRPNSSALETLGGEALTNGGLELPSSVTPSH 479
Qy 421 RIQVAQEKQVAEQGGDLSPAANRSQKASQSRPNSSALETLGGEKLANGSLEPPAQAA PGP 480

* * * * *
Db 480 SKRASDCSNLSTSESM DYGTSLADLSLNKETGSLSLKSGSKLHNKTLKRTRRFVVDGVEV 539
Qy 481 SKRDSDCSSLCTSESM DYGTNLSTDL SLNKEMGSLSIKDPKLYKKTLKRTRK FVVDGVEV 540

* * * * *
Db 540 SITTSKIISEDEKKDEEMRFLRRQELRELRL LQKEEHRNQTQLSSKH ELQLEQM HKRFEQ 599
Qy 541 SITTSKIISEDEKKDEEMRFLRRQELRELRL LQKEEHRNQTQLSNKHELQLEQM HKRFEQ 600

* * * * *
Db 600 EINAKKKFYDVELENLERQQKQVEKMEQDHSVRRKEEAKRIRLEQDRDYAKFQEQLKQM 659
Qy 601 EINAKKKFFDTELENLERQQKQVEKMEQDHAVRRREEARRIRLEQDRDYTRFQEQLKLM 660

* * * * *
Db 660 KKEVKSEVEKLP RQQRKESMKQKMEESHQKKQRLDRDFVAKQKEDLELAMRKLTTENRRE 719
Qy 661 KKEVKNEVEKLP RQQRKESMKQKMEEHTQKKQLLDRDFVAKQKEDLELAMKRLTTDN RRE 720

Fig. 15C